

MASSACHUSETTS PLOUGHMAN



VOL. LXII. - NO. 12

BOSTON, MASS., SATURDAY, DECEMBER 13 1902

WHOLE NO. 3177

MASSACHUSETTS PLOUGHMAN
NEW ENGLAND
JOURNAL OF AGRICULTURE
Official Organ of the N. E. Agricultural Society.

MASSACHUSETTS PLOUGHMAN PUBL. CO.
Publishers and Proprietors.
ISSUED WEEKLY AT
NO. 3 STATE STREET,
Boston, Mass.

TERMS:
\$2.00 per annum, in advance. \$2.50 if not paid in advance. Single copies 5 cents.
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Foot and Mouth Disease.

More serious calamity to the interests of our New England farmers has occurred in many a year than the outbreak of the foot and mouth disease in this section of the country. Such a widespread and infectious disease in New England is a much more serious matter than in far-off countries, like Australia and South America, or even among the cattle ranges of the far West, because here cattle are bred for milk, butter and cheese, and are very much more valuable than when they are produced only for beef. Hence it is much more of a calamity for the New England farmer than for some other cattle raisers in more distant and less civilized sections of the world.

Heretofore this section of the country has been very free from this particular plague, and really from all cattle plagues, except tuberculosis. The experience of Europe has shown this foot and mouth disease to be one highly contagious, and hence this fact justifies the utmost vigilance in America, so long as there is any danger that the trouble will get a permanent foothold.

No serious is this cattle plague that the action of the Department of Agriculture in forbidding the transportation of cattle from any one of the New England States to another is highly commendable. This must work great individual hardship, but it is far better for each and every farmer to co-operate with the State and national authorities in this matter, in stamping out the disease, even at a considerable sacrifice, than to hesitate or delay, and allow the disease to get a stronger foothold, perhaps spreading to other sections of the country, and becoming a national calamity. It is to be hoped that every farmer who has in his possession cattle, sheep or hogs will be willing to submit without complaining to the just restrictions and regulations of the cattle commissions of the different States, and to the wise regulations of the United States authorities.

The fact that this disease is highly contagious must be recognized by each and all. Common highways, over which diseased stock have walked, become contaminated by the sore hoofs. The same may be true of railway cars and steamships in which such cattle are carried from one place to another. Healthy animals making use of the same facilities afterward are liable to acquire the disease. This is the reason why among the first steps in seeking to prevent an epidemic is to stop the moving of cattle about in any way whatever in the regions which have come under suspicion. We hope every one interested will take pains to insure prompt reports of new cases. Where healthy animals have been exposed to the contagion, isolation for a suitable period is a safe precaution.

Our most reputable veterinarians think animals that have once suffered from this disease are rendered almost valueless, and in many cases severe forms of disease would be best followed by death of the animals. This, however, seems like a stern and costly measure, but once a disease is under control by our authorities such measures may save country millions of dollars in the long run. Protection of the healthy stock of this section, and in fact of other sections, should be the first consideration, and whatever measure that object demands should be taken without hesitation. No doubt the United States will make a large appropriation to pay for all animals which are killed by order of such authorities.

This outbreak is a great calamity to the State of Boston in a commercial aspect. Exports from Boston for eleven months of 1902 have been 78,645 head, while for the same period, 112,864 head of cattle were exported, and in 1900 the export of the eleven months was 124,932. This business must come to a standstill, and no doubt will be transferred to Canadian ports, New York, Philadelphia, Baltimore and other ports.

The refusal of the British government to allow the importation into the United Kingdom of cattle arriving from New England after this week will not cause any solicitude in Great Britain about an adequate beef supply. Neither will it interfere to any great extent with the West-Indian cattle raiser or shipper. A more rigid selection of the animals sent will undoubtedly be made, both here and in England, and shipments made from New York or other southern ports will no doubt go out without suspicion. Again, this cattle plague affecting only in a small section of the country will undoubtedly lead to the shipment of larger consignments of dressed beef in refrigerators. The present shipments in that way are somewhat restricted by the refrigerator facilities, which will undoubtedly, however, be increased in all transatlantic steamers.

It is to be hoped that no wrong impression

of this trouble may go abroad. We trust it may be understood that, excepting a very small proportion, all of the cattle exported from this country come from the Western States and from Canada, and, therefore, this trouble in New England has nothing to do with the great cattle-producing sections.

The closing of the Brighton stock yards, the principal ones of New England, will undoubtedly cause a serious interruption of traffic, which under ordinary circumstances, aggregates five hundred to seven hundred head of cattle a day. Hence, we must be willing to keep milch cows on the farm pro-

vided they can be kept in good condition. But when one has dry corn fodder, coarse bog meadow hay and such material to use up, we believe it will pay to put it into a tight box, and moisten it with hot water, at least a gallon to five bushels of fodder, adding a little salt and whatever grain is to be fed with it, then cover it up and let it stand for twelve hours to steam through. At the end of that time it will still be warm enough to feed out, and will be so softened and flavored with the grain that the cattle will eat it readily, while it will be easier of digestion than if fed dry.

But to get the best results from cooked

corn slowly when the temperature is nearly at the freezing-point. We say nearly, because there are others that are said to spread most rapidly when the temperature is below freezing, and we think the one which causes bitter cream, when it is not caused by weeds in the food, is one of those. Many farmers think they cannot afford to build an icehouse, and lacking it they go without ice for the household and for the dairy all summer, or are dependent upon the village ice man to bring a supply at a stiff price. Yet we have seen ice well packed out of doors, in a place from eight feet square and eight feet deep, or about thirteen

better methods may be learned by experience and inquiry later on.

PRUNING SMALL FRUITS AND ORCHARDS.
Probably most of those who grow small fruit for market have already pruned raspberries and blackberries, and layered them down, or are already to do the last as soon as the thermometer shall indicate that the freezing-point is near at hand. They have cut the superfluous canes out of them and out of the currants, making sure to get all that are showing signs of any disease or that are affected by the borer. They have their grapes cut back, and all that are not hardy loosened from the trellis to layer

less water than later, and the material taken from the ditches can be put in the low places and the ground made level. Then the spreading on of an inch or two of sand a little later, when the ground is frozen solid enough to allow the team to pass over it, will raise the level between the ditches and convert a cold muck into a warm, sandy, muck soil, that will grow almost anything from a good English grass to a field of onions, cabbages or cranberries.

CUTTING WOOD LOGS.
We scarcely need to suggest the cutting of wood to the farmers this winter. The high prices that have prevailed have made many a farmer who has a wood lot decide that another winter will not find him without a good supply of cord wood ready for market, if the supply of coal is short. The question with many will be whether to cut all clean as they go, or leave the "unger trees" and merely thin out the older ones that have but little more growth to make. We favor the latter plan when one can cut the larger trees without having them break the smaller ones as they fall. When this cannot well be done, it is better to cut clean, and then as new sprouts come up keep them so thinned out as to give each a chance to grow independently of the others. In twenty years there will not be as many trees, but there will probably be more wood, and in forty years twice as much wood, with more growth to come in some varieties.

Rotation Plant Food Figures.

The advocates of rotation and legume farming claim a practicable universal double acting regeneration of soils in plant food, by the simple means of growing clover. Years ago somewhat similar claims were made for fallowing, and for the same reason. Legumes and fallowing act much in the same method in agricultural economy; simply in storing plant-food nitrogen in the soil, and this plant-food nitrogen is taken from the air, and is thus generally counted free of cost. This free-of-cost business is never carried out as fallowing implies the loss of use of the soil, and legume growing frequently means a year of unprofitable cropping. However, the expensive plant-food nitrogen is gained, and this is a far step in advance.

The claim is made that clover, for example, can be used in the simple corn-wheat-clover-timothy rotation to supply all the nitrogen needed for the three non-leguminous crops, and the potash and phosphoric acid also said to be present. For example, clover cannot fix atmospheric nitrogen unless potash and phosphoric acid are present in proper quantities to go with same in the formation of vegetable substance, hence the ignorant argument that so long as the clover lasts the other plant-food elements will also last. This is a mistaken understanding of the influence of clover, and one that has done much damage. The best way to clear up the matter is to take the actual plant food utilized by the rotation mentioned.

We will suppose that all the plant-food nitrogen of the clover crop comes from the air, that all the wheat, one-third the corn, one-third the clover hay and one-half the timothy hay are sold off the farm, and that all the plant food of the crops fed on the farm is returned to the soil, and that two-thirds of it is realized as plant food for future crops. The total plant food in the four crops is as follows:

	Nitrogen.	Potash.	Phosphoric Acid.
Corn.....	110 lbs.	78 lbs.	58 lbs.
Wheat.....	57 "	30 "	24 "
Clover.....	147 "	118 "	30 "
Timothy.....	129 "	107 "	39 "
Total.....	443 lbs.	333 lbs.	151 lbs.

Of the plant-food nitrogen, 147 pounds are credited to the clover and are to be deducted, leaving 296 pounds for the fertilizer consumption of the four years, other than such as may be derived from the clover. The plant food sold off the farm is as follows:

	Nitrogen.	Potash.	Phosphoric Acid.
Corn.....	8 lbs.	13 lbs.	7 lbs.
Wheat.....	36 "	11 "	17 "
Clover.....	36 "	30 "	10 "
Timothy.....	66 "	54 "	20 "
Total.....	158 lbs.	117 lbs.	54 lbs.

These quantities of plant food are totally lost to the soil; deducting same from the total crop needs we have the plant food returned to the soil as manure, etc., as follows:

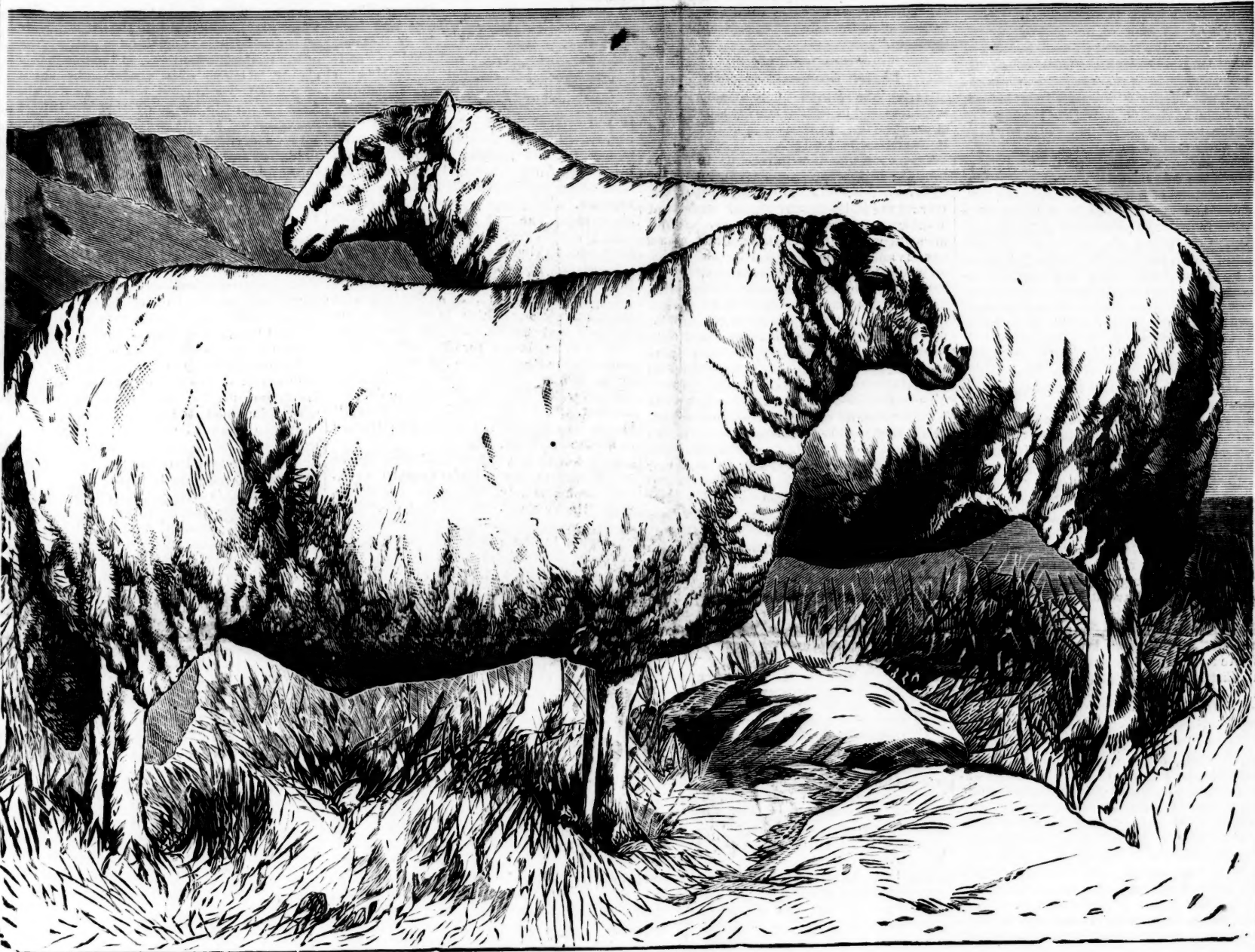
	Nitrogen.	Potash.	Phosphoric Acid.
Total crop.....	443 lbs.	333 lbs.	151 lbs.
In sales.....	158 "	117 "	54 "
Left.....	285 lbs.	216 lbs.	97 lbs.

At best not more than two-thirds of this can be realized as plant food in new crops, so that the actual plant-food drain by this simplest of all rotations is as follows:

	Nitrogen.	Potash.	Phosphoric Acid.
Left.....	46 lbs.	32 lbs.	32 lbs.

This represents what must be actually returned to the soil every four years in this simple crop rotation, including the use of every pound of farmyard manure made, and all of it saved with scrupulous care; conditions never realized on the average farm. Even with the most careful use of clover, and conservation of manures, the net loss of plant food per acre runs per year about twelve pounds of nitrogen, eighteen pounds of potash and eight pounds of phosphoric acid. This may be taken as an excellent general fertilizer formula in broad general farming.

Those who have given the subject the most investigation are loud in their praises of the prompt and intelligent action of Dr. Austin Peters, the competent and energetic veterinarian at the head of the Massachusetts Cattle Bureau. It is to the advantage of every interest in the State that a well-educated veterinarian, like Dr. Peters, should be in a position to advise public sentiment, and to check the spread of this serious cattle disease.



THE COTSWOLD BREED OF SHEEP.

ected from outside danger, and in accordance with the cattle commissioners' instructions, not to move such cattle about, or exchange with neighbors at distant points. It is even much better for the port of Boston to be closed entirely to the shipment of cattle for the time being than for the country to lose its whole export trade. In three years time that would mean the loss of upwards of two million head of export cattle from the ports of the United States.

Farm Hints for December.

PREPARE FOR WINTER.
The first duty of the month, if it has not been already done, is to make preparation for cold weather, not by laying in a large supply of coal, for that seems to be almost impossible even for the rich, but by making all the buildings snug and wind proof. Cracks should be buttoned and all the broken windows glazed. It will pay in all barns to sheathe up the inside, and line them with roofing paper or felt to keep the wind from blowing on the animals. Do the same at the henhouse to protect the fowl.

It may easily double the number of eggs during the winter when eggs are high priced. Make sure that the doors are not only well hung, but their fastenings are secure, so that the wind may not blow them open and reduce the temperature inside to that outside on a cold night. We have known an hour or two with an open door and a cold wind to reduce the milk flow from one-fourth to one-third, a loss which was not easily made up. Get a good pile of dry wood ready if it is to be had. Scarcely a wood lot branches that may well be cut out, even where there is not wood already out and seasoned. Get the sleds and sleighs ready for use, for snow will soon be here. Bank up around the house and other buildings, as they may need it to keep the wind from blowing under them and through the floor.

Keep the grain bins well filled that it may not be necessary to go to the village through deep snowdrifts, or go without grain for a few days just when the animals need it most. A neglect to keep these little matters attended to in season marks the shiftless farmer, who is always behind with his work and "dreadful unlucky" with his stock.

COOKING FOOD FOR STOCK.

We do not believe it will pay to cook good food for stock that are kept in stables seldom below 50° in temperature and never below freezing in the coldest weather. Nor will it pay to cook food and give it warm to

food there is no better way that we know of than to feed the coarse food and grain as above described, give water at almost any point from lukewarm up to 100°, and we prefer the latter, and then keep them in a warm stable, and give a comfortable bed for at least twenty hours out of each twenty-four. The pure air should be furnished them in the stables, and they should not lack for sunlight, while on a pleasant and warm day about four hours exercise in the yard will not injure them, and we are not sure that it will do any good. If the fattening hog only needs to eat his ration and then lie down in the straw, why should the cow, whose energy goes to produce milk, be expected to expend her energy in a walk round in the yard which she should devote to the production of milk and butter fat?

NO ICE WATER FOR STOCK.

Ice water may be a good thing for an animal that has had a good warm meal on a cold day, but we do not believe it. We may endure it better than one that has had a meal of dry fodder not steamed or warmed, but we are by no means sure of it. We liked a glass of ice water or of cold spring water on a hot summer day when we were at hard work, but we were far from young before ice water was a common beverage on the farm, and we never felt sure that it was better for us than water fresh drawn from the well at about 49°, or even better than that, which had been in the field until it was a little lukewarm. And we have thought that the coolness led to a too liberal or frequent use of it that kept the digestive organs so chilled that they failed to work properly, or could not do so until the water had been thrown off in perspiration. Even if it is good for the human race, we fail to see that it is any benefit to the animals, and certainly think it reduces the ability to produce milk and probably to lay on fat in the winter time. A warming of the water, from the use of a pall or washbowl full, to take the chill off that in the trough, or the use of a heater or a steam pipe that will bring it up to about 100° in the winter, we think will prove profitable when the cattle are kept in warm stables.

ICE FOR DAIRY AND TABLE USE.

But our principles do not yet extend to the failure to use ice at the milk or dairy room. The rapid cooling of the milk while being aerated can scarcely be well done without the use of ice in the cooler, nor can the dairy room be kept at a sufficiently low temperature in the summer time without its use. Nearly all the bacteria that affect milk and cream propagate most rapidly in warmth and slowly in cold, but perhaps

tons, to one twice or three times as long and the same width and depth, fenced about with common fence rail twelve feet long, and the space at sides and ends well packed with straw, with top well thatched with the same that kept ice almost without waste until August, and but little wasted, although the last was not used up until cold weather. The first man who showed us this plan said he had saved enough on ice this year to build a good icehouse, but he could not see how he would save anything by building the icehouse, and if he is alive we should expect to see his ice in a straw stack next winter if we went that way, unless he wants to use the ice to cool a storehouse for fruit and vegetables.

KILLING AND PACKING PORK.

Many farmers leave the killing of hogs to furnish pork for home use until December, especially if the month of November has been, as this year, almost without freezing weather. We disliked the job, anyway, when on the farm, and when we learned that a man would come to the place and kill them, take them home and dress them and bring them back, for a dollar each, we were glad to pay the dollars, whether we had two or twenty to be killed. No more heating of water and standing in the steam for hours, to be succeeded by another hour away from the fire, in which we grew cold again at the expense of a cold in the head or an attack of rheumatism, and no more heavy lifting for us on butchering day. We thought the money so spent was money saved, and if we had a two hundred-pound pig fat enough to be killed, we did not feed him up to four hundred pounds in order to make the butcher earn his dollar. If he would not dress two hogs of two hundred pounds each at less cost than he would one of four hundred pounds, we felt sure that we had saved more than \$1 in the cost of grain fattening.

Dressed hogs round, as it is called, or whole, sell for a good price now, but there is, undoubtedly, a profit in salting them and smoking the hams and shoulders, if not the sides, and saving them until next spring or summer to sell at the retail price, then, and it is really not much trouble. The man with a half-dressed hog will not get as rich as Armour in doing so one year, but he will find a considerable increase to his income if he let it be known that he has home-cured, corn-fed pork and hams or bacon to sell. Of course, he should know how to cut them up and to salt and smoke them, but almost any old farmer will give instructions for all of that in one evening with a mug of good beer at his hand, or even the promise of a piece of fresh meat to take home. And if he is not the best way,

down and cover as soon as the ground freezes, having left two or three buds on the old growth to form wood for the next year's crop. Luckily the warm weather has held out so well that it is not too late for the amateur to follow their example, and every farmer should have enough of these small fruits to keep him busy for one day in doing this. As for the larger fruits, the peaches and pears may well be cut back now from one to two-thirds of last season's growth, and it would not damage the apple trees, or, at least, the young trees to do the same by them. A limb that dies by being frozen in the winter is much worse than no limb at all. As regards what is called pruning of the orchard, the cutting of old limbs out of large trees, we know that it is often done in the winter, but we do not like the practice. It may be better than not pruning at all, but the wounds so made seldom heal over soundly, though they may be partially protected by a coating of grafting wax or a coat of thick lead and oil paint. But if we could always do as we liked, we would seldom cut a limb in a young orchard that was larger than our little finger, and would do that only when we saw that it ought to come out, if we had a sharp knife with us. If we had an old neglected orchard to trim, we would now mark all the limbs that we thought should come off with a stripe of white paint where they should be cut, and if too busy ourselves with spring work would get a man to do the saving off in May. If cut with a sharp saw, and the wood smoothed off with a sharp knife or drawshave, the bark will soon grow over most of the wounds. We should not care if we did not get all the undesirable limbs the first year. It might let too much sunlight into the top, causing sun scald. Two-thirds of it the first year, one-third the second year, and then there will be some left, to be taken the next year if the tree keeps growing.

DITCHING IN WINTER.

There are many places that need ditching that are too wet to work in during the spring and fall, while in the summer, when they are driest, other work is too pressing to allow much time for ditching. The new machines get the mowing and harvesting over with much more quickly than when we were young, but, with increased facilities for doing the work, many farmers have increased their acreage in crops until it requires about as much time to harvest them as it did by the old methods. But of the ditching we will say that much of it can be done when the ground is frozen an inch or two deep, as then there is usually

United States Department of Agriculture.

We give the following extracts from the annual report of James Wilson, Secretary of Agriculture, 1902:

The secretary opens his report with a reference to the educational work of the department, which he says has grown in effectiveness since his last annual report. He finds that the demands of many public institutions for men to conduct research in scientific fields and for ability to manage agricultural enterprises encourage young men to take advantage of the opportunities thus afforded. The teaching of the science of agriculture and of the sciences relating to it are receiving more attention in the colleges instituted for the purpose, many of which have neglected their full duty in the past.

Research into the principles governing the growth of plants has resulted in increased varieties to select from. The department is helping the people in many localities to an intelligent knowledge of their soils, and of the most profitable uses to which they may be devoted. The department's explorers are continuing to search the Old World for valuable plants, which may be successfully transplanted here. The purpose is to help toward the production in our own country of everything that soil and climate will permit, and to avail ourselves of our new island possessions to grow such products as demand tropical conditions.

The past year affords gratifying evidence of the value of forecast warnings of the Weather Bureau in saving life and property. Ample testimony is afforded that the value of property thus saved from loss amounts to many times the cost of maintaining the bureau. The secretary urges the desirability of extending the distribution of daily forecasts co-extensively with the rural free delivery routes existing Aug. 1, 1902. It has been found possible to serve only one thousand. To make the distribution co-extensive with the rural free delivery would, he estimates, cost about \$100,000.

Under the inspection service of the Bureau of Animal Industry antemortem inspections for the year aggregate nearly sixty million, at a cost of a fraction over one cent each. The number of postmortem inspections was nearly 39,000,000. The meat inspection stamp was affixed to over 23,000,000 packages of meat products, and the number of certificates of ordinary inspection issued for meat products for export, exclusive of horseflesh, was 32,744. The quantity of pork examined microscopically and export exceeded 33,000,000 pounds. Altogether the value of exports of animals and animal products for the year amounted to \$244,733,062. The clearances of vessels carrying live stock was 837, and the inspection of these vessels has reduced the percentage of loss in ocean transit to 0.13 per cent. for cattle, 0.89 per cent. for sheep, and to 0.65 per cent. for horses.

There were inspected and admitted from Mexico over 65,000 cattle, and fully six thousand sheep, lambs and goats. Imports from Canada of cattle numbered only 27,716. We imported from that country 148,313 sheep. The strictest quarantine is maintained at the ports on the seacoast in order to prevent the introduction of animal plagues. In addition to cattle and sheep, there were quarantined animals of various species for menageries and zoological parks. The department veterinarian stationed in Great Britain treated with tuberculin all cattle over six months old destined for export to the United States. Of 1067 cattle so treated, 139 were rejected.

Experimental exports of dairy products have been made to Japan, China, Cuba and Porto Rico. The obstacles to the rapid increase in this trade are principally inadequate transportation facilities and climatic conditions. Results, however, encourage further cultivation of the markets of Japan. Under the Act of Congress of March 20, 1902, the dairy division has inaugurated a system of inspection of dairy products offered for export, certifying to the quality and character of the articles.

He reports investigations having for their purpose the extension of the export trade in fruits and vegetables, and improvement in methods of handling these products for foreign and domestic use. Several experimental shipments have been made to European markets. The results have been fully satisfactory, the net returns in most cases exceeding domestic values. The net returns are largely influenced by the kind of packages and methods of packing and shipping.

The secretary urges the necessity of a thorough and systematic study of the different foreign markets so that the American farmer and fruit grower may make shipments intelligently. He proposes to send an experienced man to one or more of the most promising foreign markets to study prevailing conditions and to secure and handle experimental shipments, noting all conditions which have a bearing upon the results. This agent will also study the products with which we have to compete, and will do what we can toward enlightening the general public in foreign countries in regard to the character and value of our own products. If sufficient funds are available, this work will be inaugurated the forthcoming year in a limited way.

Investigations of grasses and forage crops are of vital importance to American agriculture, and these have shown during the past year that the maintenance of soil fertility is intimately associated with the production of forage crops and their proper utilization on the farm. The success attending the efforts of the department to introduce alfalfa in the clover regions is most encouraging, and it will be pushed vigorously the coming year. Experiments are now being made with the new and promising variety of alfalfa from South America, which resists the rust which so frequently attacks the common form.

The secretary urges the adoption of proper methods of range management, and recommends that Congress give to the President authority to secure for the experimental needs of the department such tracts of public range land as may be necessary to continue its experiments on an adequately large scale.

The secretary declares his wish has been to carry out the will of Congress in the distribution of seeds, so as to result in the most good to the country. The Congressional distribution last year was the largest in the history of the department, and particular attention was given to forage crop seed, cotton seed, tobacco seed and seed of other special crops. To still further increase the efficiency of the seed work, several new plans have been put into operation. Under the present system, the department secures its own seed in the open market, contracting only for the mechanical work of packing and mailing the seed. Seedsmen are now co-operating with the department in furnishing specialties and novelties. These will be distributed only so long as to make them thoroughly known, leaving the de-

mand then to be met by the regular trade.

Interest in forestry and a perception of its possibilities as a great national resource have developed so swiftly in the United States that the discrepancy between the capacity for Government service of this branch of the department, and its opportunities were never so great as now. During the past year the Bureau of Forestry has notably increased its store of knowledge, on which all forestry depends, and has made large gains in introducing practical management of forests of both public and private ownership. Its field work has engaged 102 men and has been carried on in forty-two States and Territories.

Thirty-seven applications were received during the year, asking advice for the management of two hundred thousand acres. The total area now under management, in accordance with the working plans of the bureau, is 372,463 acres. A plan is in preparation for a tract in southeastern Texas, comprising an area of one and one-fourth million acres, the largest private holding of timber land in the United States.

By the request of the Secretary of the Interior, the Bureau of Forestry has become its official adviser in matters of forest policy for the national forest reserves, covering over sixty million acres.

The methods devised for the analysis of soils in the field have been so perfected that the amounts of nitrates, phosphates, sulphates and the like can be determined to within four or five pounds per acre, one foot deep. Concluding his review of the Soil Survey work, the secretary says, "I know of no line of work which has been undertaken of more fundamental importance than that of the division of soil management, nor one which offers promise of more valuable results to agriculture. It will tend to solve fundamental problems, giving a reliable basis for the development of better methods for the cultivation, fertilization and cropping."

The study of the San Jose scale in Japan and China and the importation of its lady-bird enemy has been an important feature of the year's work in the Division of Entomology, besides importations of foreign beneficial insects, work with the South African cross-hybrid fungus, and the sending abroad of some of the beneficial insects of this country. In co-operation with the Bureau of Forestry the entomologist is investigating the insect enemies of forests. Valuable results have attended the investigation of the Mexican cotton-boll weevil, and the possibility of controlling the codling moth in the Northeast has been demonstrated. The direct relation to the comfort and health of human beings of the mosquito and other insects has aroused great popular interest, and these investigations are being followed up with advisory work and the study of new problems. Experimental work with insecticides and investigations of the insect enemies of drug crops, greenhouse and ornamental plants, orchards, cereals and forage crops have been continued. The subject of silk culture in the United States, placed under the charge of the entomologist by Congress, is being thoroughly investigated. The secretary reports the practical success of Smyrna fig culture in California, and predicts that in a very few years Smyrna fig orchards will be in bearing in many places in California, and doubtless in other Western States where climatic conditions are favorable.

In apiculture the work has included importation of select breeding queens from Italy and smaller importations from Austria and Cyprus. Very favorable reports of these queens have been received.

Statistics of attendance at the land-grant colleges show over forty-two thousand students enrolled, an increase over the previous year of seven per cent. The attendance for the four-year course in agriculture increased more than twenty-six per cent. The secretary points to the marked success of agricultural high schools in Minnesota and Nebraska as an indication that there is a demand for agricultural courses with those afforded in various manual arts in the city high schools. He states that all over the country farmers are sending their children to public high schools and paying for their tuition.

In regard to Farmers' Institutes, he states that these are now held in forty-four States and Territories, including Hawaii. Over 2300 institutes were held last year. The funds contributed by the different States and Territories to this work amounted to nearly \$200,000, and 7000 persons attended these institutes. He points out that while the persons actually engaged in agricultural pursuits number about ten millions, the total number of persons reached by the institutes and the agricultural colleges is not much over seven per cent. of that number, while the publication of the stations reach about five hundred thousand farmers.

The investigations of the Division of Foreign Markets show exceptional activity on the part of our competitors in the agricultural export trade, especially Australia, Canada and Argentina. Our own agricultural exports for the fiscal year, 1902, amounted to \$860,000,000. This, next to the exceptional record for 1901, is the highest ever reported. The falling off from 1901 was mainly corn and cotton. The decline in these two products aggregated \$89,000,000. Special interest has been aroused in our commerce in forestry products. Of these the United States exported last year \$30,000,000 worth, Europe being the principal foreign market, and the United Kingdom the largest purchaser. Our commerce with Hawaii in so far as agricultural products are concerned, shows a slight falling off, but a considerable increase with Porto Rico and the Philippines.

The secretary concludes his report with some interesting figures illustrative of the magnitude of the agricultural industry. In 1900 the fixed capital of agriculture was about twenty billions of dollars, or four times that invested in manufacture. In that year there were nearly 5,000,740 farms in the country, covering 811 million acres,

415 millions of which consisted of improved land. According to the returns of the last census, about forty million people, or more than half of the total population in 1900, resided on farms. Of the twenty-nine million persons reported as engaged in gainful occupations, ten million—more than a third—were employed in agricultural pursuits. The produce of American agriculture in 1900, including farm animals and other products, aggregated nearly five billions of dollars. The most valuable crop was Indian corn, \$388,000,000; then hay and forage, \$444,000,000; then cotton, \$334,000,000; wheat, \$287,000,000; and oats \$217,000,000. The animals sold and slaughtered during the year were valued at over \$900,000,000, the products of the dairy gave \$472,000,000, while poultry and eggs returned over \$281,000,000. The concluding statement of the secretary is that results in the work of the Government for agriculture are justifying expenditures, and "the future will still further show the value of science applied to the farm."

Boston Cranberry Market.

During the month of September there were received in Boston market 3990 barrels of cranberries. In October 9628 barrels and in November 7392 barrels.

This corresponds with receipts in 1901 as follows: September 3990 barrels, October 13,138 barrels, November 10,319 barrels. During the same months in 1900 receipts of cranberries in Boston market were as follows: September 3938 barrels, October 7368 barrels and November 10,066 barrels.

Quotations for cranberries in Boston market at this time are as follows: Extra large, fine order and good color \$8 to \$8.50. Fairly good size and color, sound \$7.50, smaller berries sound \$7, light-colored berries \$6 to \$6.50, berries not in good condition \$5 to \$5.50, soft berries \$2.50 to \$3.50, all barrel prices.

During November the berry market has been steady and strong. Prices for sound, small berries to fine large, good-colored berries range from \$6.50 to \$8 per barrel. The general price for Early Blacks is \$7 per barrel.

The outlook is favorable for cranberries. The market here today is almost completely bare of berries in receivers' hands. Dealers have orders to fill at market prices, which cannot be filled at present, on account of lack of stock. Some dealers claim they have never sold as many berries in November as they have this season. No doubt trade will improve during December, as many berries are always wanted during the holiday season.

Literature.

This popular juvenile is a companion volume to the Peter Newell edition of "Alice's Adventures in Wonderland." The publishers have dressed Lewis Carroll's story in an attractive binding of white and gold, and the pages have a margin border of fantastic designs in pale green on white. After all, it is the illustration of the text by Mr. Newell which stamps this favorite juvenile a holiday novelty. His pictorial representations of Alice and her experiences are unique and fantastic, and will probably interest "grown ups" as much as they will amuse the young folk. Miss Alice, it will be recalled, wonders what is on the other side of the mirror, and it is in a dream that her inquisitiveness is satisfied. Dreamland is the open door to the game of chess, which she sees played by people with whom she has queer experiences. She meets first the pawns, white and red, who turn out to be such odd persons, such as the daisy, the fawn, etc., while among the other pieces or chess people are Humpty-Dumpty, Tweedledee, Tweedledum, the red and white knights, the kings and the queens, the carter and the walrus. Alice meets the red queen, converses with her, and decides to join in the competition for royal honors, or gain a kingdom for herself. In order to put her resolution into action, she is obliged to make hasty journeys and short stops. Finally she wins in the contest, and is placed between the two queens at a grand feast. In the general uproar and confusion Alice upsets the table by catching the tablecloth to save herself from being pushed out of the way, and her dream ends. She finds herself in the cozy, armchair with the kitten and the mother cat nearby. Mr. Carroll's cleverness in conceiving and executing this story is now matched by the ingenuity and skill of Mr. Newell in illustrating the eventful scenes through which Alice passed. This combination, with the aid of the book-maker, results in a volume which will delight the young. [New York: Harper & Bros. Price, \$3 net.]

In this novel Anthony Hope has for his heroine an extremely vivacious, impulsive and generous-hearted young woman, whose name is Peggy. She possesses an income of \$20 a year, and an uncle in Berlin sends her a check at irregular periods. When the check arrives Peggy gives a dinner, and when there has been no check for some time, Peggy accepts a dinner. Then there is always bread and butter to be had at Alrey Newton's, a man she has known in a very friendly manner for over two years. To all appearances Alrey Newton gained a scant livelihood by working hard at inventions; but the real state of affairs, known only to himself and one intimate friend, who acts as his man of business, is that he is a wealthy man gained by speculation. There is the character of Mrs. Trix Travella, who, since her husband's death, has been spending freely both her interest and principal. Having met Mr. Alrey Newton when she was in mourning, she claims that she now acts on what he advised her then, which advice was to go and play with life. "I dare say you will scorch your fingers for the fire burns, but it is better to die of heat than cold, and if trouble comes call at the Danes' Inn," he had said. When Trix had set up her

establishment and had been taken up by Lady Bonhill, who first designed her for Beaufort Chance, she then decided Lord Marvin only was good enough for her. She, Trix, called at Danes' Inn to inform Mr. Newton of her success. There she meets Peggy and claims her friendship. The tragedy of money is played from this point on to the close of the book. Peggy discovers Alrey Newton's real financial condition, and Trix becomes engaged to Lord Marvin while she is entangled in speculations with Beaufort Chance and a Mr. Fricker. Chance has determined to marry Trix, but wants her a rich woman, therefore he introduced her to Mr. Fricker, who is impossible in the society in which Trix has made entrance. However, Trix agrees to introduce Fricker and his family in return for his services, but she falls both him and Chance. These two men connive to her downfall and succeed. When Trix discovers that she is ruined and owes Mr. Fricker \$2000, she leaves Lord Marvin's home and flees to Peggy. How the tangle is cleared, and not only Trix restored to self-respect and happiness, but Alrey Newton also, is all due to Peggy's efforts. Mr. Hope's lessons of extremes in money is self-evident. Peggy spends all she has, regardless of the morrow, Trix wants money for the position in society it can bring her, Alrey Newton loves money for itself alone, and Tommy Trent is the happy medium, who places love and happiness above else.

The book contains a well-developed plot with very human characters, who share enough individuality to render them interesting throughout the story. However, the story does not ring true of Mr. Hope, for there is lacking that strong sense of right and wrong which is evident in the author's best novels. Perhaps the theme itself is to be blamed for this, but when we complete the story our idea of the lesson to be gained is neither clear nor forcible. Whatever Mr. Hope writes has an evident interest, and "The Intrusions of Peggy" is not an exception. [New York: Harper & Brothers. Price, \$1.50.]

This volume is a collection of nine stories which narrate in a fanciful manner a general theme, namely, the search for happiness. Henry Van Dyke, the author of these stories, views this general subject in different lights in these creations of his fancy. A reader always interprets a story for himself, and it is not a rare occurrence to miss the author's intended meaning. In these stories, where the real significance is hidden in fantastic figures, it is left to each reader to glean what explanation he may of the general theme. One story, entitled "The Source," is the tale of a good man slain by his enemies; his friends maintain that he is not dead but changed into another form. They assert that they visit the place where he lives, which is the source of the river, and while they remember to go to this place, the flow of the water will enrich the city. It is prettily told—this story of how even the death of a good man brings prosperity to the just and the unjust, even as the water is free and without price.

"Spy Rock" tells of the dreamings of a mind disturbed by the use of Hashish. In these wanderings of the brain the man beholds a great world of which it is his ambition to write some day. "The Lost Word" places before us the picture of a youth, in his enthusiasms having given up his wealth and bound himself to the Christian sect. The cold, gray morn of reality has dawned on him, and he is without the peace and joy he thought was his. For wealth, pleasure, success and fame he sells the name of the one he worships. When the years have brought to him the emptiness of it all, he seeks that which he has lost and it will not come. Repentance at last reclaims his soul. In this way each story has its moral teaching, and the views of life in this dress, which fancy provides, are often the kind we seek the most. The dream of the man for gold, for fame, for love or for knowledge, are all ways in which he seeks that which he calls happiness, and in the end he finds them empty names. Mr. Van Dyke writes in that artistic style peculiar to himself, and the original manner in which he demonstrates his theme is poetical in conception and exhibits infinite delicacy of feeling. He is one of the few masters of the short story. [New York: Charles Scribner's Sons. Price, \$1.50.]

As a newspaper correspondent Julian Ralph has a broad insight into human nature, and that he has observed with good purpose is demonstrated by this new book, "The Millionaire's Wife." It is a study of a beautiful and good woman, meeting with the malicious attacks of society and the unscrupulousness of certain persons who attempt to use her. Where her home is situated she has built up the surrounding village with the assistance of her pastor, Mr. Stone. Well-constructed houses take the place of dilapidated buildings, and industry the place of drunkenness and idleness. Miss Lamont is always ready to assist the poor, yet never gives money in that kind of misdirected charity often used by thoughtless well-doers. Mr. Beekman, the hero, is a character possessing a commanding personality, having the power of a sort of second sight, which gift in some instances is of great value to Miss Lamont. The book contains many dramatic possibilities, which come of overwrought temperaments rather than through any special action. The chief characters all have strong personal attributes, and if placed anywhere would create for themselves a drama of human interest and charm. There is the strong fanatic, Mr. Cross, who is on the brink of madness from the moment he recognizes his magnetic powers of oratory. On the strength of this gift he goes into the pulpit, and his dying sister accuses him of playing a part. He from that moment goes crazy over religion. Jack Lamont is a cunning villain who works his own end, and Archie Paton, a selfish man, who degenerates into a morbid club frequenter, looking on life generally as a thing to be endured. Mr. Ralph sets a high ideal of conduct, although he does not ex-

actly preach. He conveys to the reader on very occasion his idea of what should be done, whether his characters enact or the part not. Miss Lamont, although his heroine, does not escape severe criticism, and while the most is unjust, she suffers as though she deserved it all. She has a morbid sense of wishing her philanthropic work to pass unnoticed by the public. When Mr. Beekman shows her a scrap-book he has compiled from newspaper clippings on that subject, she is indignant and incoherent against him. That she ultimately finds her great happiness in Beekman was a foregone conclusion. Just what the author thinks of society in general is not quite clear, and the bits of social life he does give are unpleasant reading. Mr. Ralph possesses a faculty for delineating characters which in themselves are paramount to the plot. [Boston: Lothrop Publishing Company. Price, \$1.50.]

A story of the Italian quarter of the city which gives an insight into the life of people whom we so little understand is well worthy of the reader's attention. If the tale is told simply, at times even crudely, the spirit of the self-sacrifice and love is so evident from the start to the finish that we cannot but be moved by this recital of the joys and sorrows common to every life, be it cast in high or low places. Mabel G. Foster is the author, who has taken for her chief character a young doctor, whose family was at one time wealthy, but reverses came, and Philip Burroughs has had to work his way to obtain his education. Raymond, an intimate friend, who was a junior when Burroughs was a freshman in the medical school, secures a position in the St. Luke's dispensary for him, thus rendering it possible for Burroughs to go on with his studies without feeling the pinch of poverty.

Here at the dispensary Burroughs worked and lived, going up to the college for his recitations. It was a dreary place, but with La Signorina, the interpreter nurse, to assist him among the people, he was fairly well comfortable, besides obtaining much experience. With Raymond's visits he had one other recreation, that of calling on Margaret Worthington, whom he one day asked to be his wife. Although Margaret consented, her father refused his sanction because of Burroughs' financial prospects. In the Italian district a Spanish doctor has set up a rivalry, employing Scarabini, an Italian interpreter, to draw him patients. He was a "quack" doctor, and the simple-minded people, deceived at first, swarmed back to Dr. Burroughs more devoted than ever. Scarabini, because of this, boasted that he would kill the American doctor. One night Burroughs is called to see a man who claims that he is familiar with Burroughs' family. There is every evidence that this man, Maxon, by name, has been well educated, but has contracted the morphine habit. Burroughs endeavors to persuade him to break this habit, and although Maxon makes a fight, it overcomes him. In the past he had loved Burroughs' sister, and because of her his one object now in life is to assist in some way her brother. But Maxon is poor, and he lives near Burroughs, in the hope that in some way his assistance will be needed. The opportunity comes to him. He overhears Scarabini planning to stab Dr. Burroughs within a few hours of the time set. Maxon drags himself to a saloon, pours the contents of a vial into his glass and drinks it. With the aid of the stimulant he starts on a run, in order to reach the place in time. He is not one minute too soon. In his own breast he receives the blow intended for the doctor. His death, Burroughs' sorrow over the man, and the gratitude of the people over Burroughs' escape are incidents of dramatic interest. The crucial moment in Burroughs' life has arrived. He has now to decide whether to leave this work, having obtained his degree, and start in a new place, or remain among the people here. If he stays here he must give up all hopes of ever winning Margaret for his wife, but duty points out one way only. The story is not of great literary merit, but it contains a value of its own. The pure atmosphere of sacrifice and duty is outlined from the beginning of the story to the end. The local color of the Italian quarter is one of the chief charms of the book, as well as being its original feature. The author has done justice to her theme, and has handled these people with sympathetic kindness. [Boston: Houghton, Mifflin & Co. Price, \$1.50.]

A story of timely interest for boys and older people as well is "The Young Volcano Explorers; or American Boys in the West Indies," by Edward Stratemeyer. It is the second volume in the Pan-American Series, and the same characters that ap-

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peared in the first one, "Lost on the Orinoco," continue their adventures in the present tale, leaving Venezuela for the West Indies and visiting Jamaica, Cuba, Hayti and Porto Rico, before going to St. Pierre, Martinique, about the time of the eruption of Mount Pelée. Here they have some thrilling experiences in exploring the volcano in search of missing relatives. The description of the destruction of St. Pierre, which this story furnishes, is one of the most complete that has been offered, and the cause of the disaster is explained in a simple, straightforward style, that is free from scientific technicalities. The general view of life in the West Indies, which is given in this book, has every indication of being thoroughly accurate, and will, no doubt, convey fresh and much-needed information to many readers. The author understands well the art of constructing a tale in which dramatic interest is steadily maintained without any sacrifice of probability. Published by Lee & Shepard.

This fanciful poetic story, bearing the impress of a novel conception, reminds us of the same tender sympathy for the soul bound by many barriers, which must force its way through victorious, or else sink within exhausted, expressed by Mr. Barrie in "Sentimental Tommy." The humor and pathos of living a life the author sets forth in this dainty tale of pure love for the mother, for the father or for the friend, and the delights of stretching forth the helping hand while the other hand knows not of it. The writer by his pen tells the reader how he loves people, is sorry for their mistakes, yet always glad because of the common tie between all mankind and himself—the privilege to exist and solve in some way the task set before them. The story part of "The Little White Bird" consists more of a series of adventures in Kensington Gardens which are in the first person by a gentleman who cites his impressions on incidents which come in his way. They are made largely of observations on the life of a young woman, named Mary, who has married where love constitutes all the riches. Her loving hands furnish a room, constructing her furniture out of old boxes and decorating the rooms in such a way as to cause them to appear cozy and inviting. It needs Mr. Barrie's power of description to present this delightful picture of poverty enlightened by the divine love. As life grows hard for Mary and packages arrive containing needed articles from her "dear unknown friend," who surreptitiously enjoys his boundlessness toward her, the narrative becomes invested with a softness of color and light that the tears come as readily as the smile. When motherhood comes to Mary the observer notes the halo of light which shines about her head, and the glorious smile that lights up the pale countenance. The years bring added cares which line that face, yet there is always that glory of divine rights present. The onlooker makes himself more and more the kind, "dear unknown friend," although he suspects his incoherence is secretly recognized. The story is charming, while the splendor of motherhood is sketched here in such a way as to touch the heart of all born of woman. There is a tenderness in every page which exhibits the writer's master pen in drawing a word picture of that subject which for centuries has been the ambition of artists and sculptors, namely, to reproduce on canvas and marble "the mother and the child." There are books written to entertain all moods and thoughts of man, and in this story of Mr. M. Barrie the reader will find that which will brighten the hour when life seems commonplace and lustreless. [New York: Charles Scribner's Sons. Price, \$1.50.]

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Poultry.

Sell the Chicks Early.

In keeping hens for eggs we are obliged to grow enough chicks each year to keep the flock good. This gives us each season quite a large number of young cockerels to be disposed of, besides the old hens that we do not wish to keep longer. How and when to sell to the best advantage are questions of importance, and a study of the markets will always be found an advantage.

The grower who has a good local market will usually do well to dress his young cockerels as soon as they reach the broiler size. There is little, if any, added profit to be gained by keeping them later, as the gain in weight will be offset by decline in price. But the most of us have to depend on outside markets for the disposal of our surplus. Where we are obliged to ship, it will generally be found more profitable to ship alive than dressed. The market for live chicks is always as good, often better, than for dressed. The difference in price will seldom pay for the work of dressing, especially at the busy season. I have just received returns from a coop of live chicks that were consigned to a Boston commission house, and the price received was within three cents a pound of what they would have sold for dressed. Deduct shrinkage and pay for dressing, and the balance is in favor of selling alive.

This is nearly always the case in warm weather. There is too much risk from heat and dampness and too much poor stock on the market to make it advisable to ship dressed poultry long distances at this season. When cooler weather comes it will often be more profitable to dress before shipping. But it will hardly pay to feed the cockerels until cold weather. I find the best time to sell is when they will weigh from three to three and a half pounds each. Chicks that have been well fed will be in good order at this size. As they grow older they are apt to grow thin in flesh, and they will need extra feed in the fall to fit them for the market.

If they are kept beyond this age the cockerels should be separated from the hens and pullets, as they worry the latter so that there is often a falling off in the egg output, and a serious check to the development of the pullets. After all, this is the one great reason not to be lost sight of, as our success or failure depends in large measure upon the perfect development of the hen.

So I say separate the sexes before the cockerels get old enough to worry the pullets. Sell at this time if the market will take them at paying prices, but separate whether you sell or not. This is a "little thing," but it is only one of many that go to make up successful hen farming. Try it this year.—New York Tribune.

Horticultural.

Seasonable Hints.

It is remarkable to note the expense and time some people are willing to spend, each year, in raising annuals, when, for less time, and in the end less money, they could have a permanent bed of perennials.

There are many fine, showy perennials, such as peonies, iris, hollyhocks, Helianthus, phlox, anemones and a thousand or more other kinds, that give as much color and beauty to the garden as the annuals.

Perennials, after being once transplanted, simply need occasional cultivating, and the close of the season a good mulch of manure. The annuals, after being planted from seed, in a great many cases require transplanting. During this course a great many are lost; and there is constant care needed the rest of the season in cultivating.

Annuals do very well for some small gardens, but for persons who love flowers and have plenty of ground, the perennials are the most satisfactory investment.

No plant is more satisfactory for house culture than the yellow crocus; it will grow and blossom so freely if given sunshine and water.

Begonias seem to thrive even on neglect, and give all the variety of foliage needed. The Chinese primrose is a continuous bloomer. The feathery *Asparagus plumosus* must not be forgotten; and if a vine is needed try a *Cobaea scandens*.

Visiting a florist a few days before Christmas, nothing more delightful my eyes than the bright fruit of the ornamental pepper; the tree-like plants are so clean and healthy, and the bright, shiny fruit made a very attractive plant for decoration. But I was informed at once that every plant was sold, and came away quite disappointed. The Jerusalem cherry has always been a favorite, but these gay little peppers excel even that.

It would seem no harm to hardy water-lilies to allow them to remain in water through the winter. That is exactly their condition in their native state. Of course you must make sure first that they are of the hardy kinds; also the water should be of sufficient depth that it may not freeze solid. This especially would likely prove injurious to the fish. If the water is of a good depth, however, not the slightest harm should come to the plants nor to the fish.

If the residents of the streets where the dwellings are near the sidewalk could be made to realize the possibilities in window displays of beautiful flowers, the frequent monotony of brick and mortar would be greatly relieved and an interest awakened in behalf of more frequent use of flowers. The writer has in mind two windows, on quite a small street, that never fail to attract his attention pleasantly. The sashes are fitted with large panes of clear glass, and behind them are invariably handsome flowers (not necessarily expensive ones), arranged with good taste. At this time of writing there are vases of fine large chrysanthemums. This same little street has two other sets of windows equally admirable, and with such incentive the culture of flowers is pretty sure to spread.

Much trouble may be avoided by dealing with weeds and injurious insects on their first appearance. If allowed to have several years start of efforts to control them it becomes great labor; and some are easily controlled. The drop-worm that carries its

case made up of pieces of the leaves and branches of the tree it feeds on is very destructive if left alone, but easily checked if hand gathered in time. In all carefully managed gardens, a boy is set to work once or twice a year to collect and destroy the bugs. One should not only do this on his own grounds, but his neighbors should be told of their danger in letting the drop-worm have a free foraging ground.

It is generally supposed that moss is mostly found on the north side of trees, and as a general rule this is true. But it has been found by observation that the amount of moss varies and is on different sides of trees. This fact does not materially militate against the general rule that moss is found mainly on the north side.

To intelligently understand why moss is found growing on forest trees we must understand the law that governs it.

No moss will be found growing on trees standing singly and alone in the open.

Three conditions are necessary for the formation of moss; viz., coolness, shade and moisture.

The old rule will hold true where a forest of trees stands on a level. As a general rule trees have both a warm and a cool side. Moss formation is always on the cool side.

The heart of a tree will always be found (save in some exceptional cases) nearest the cool and mossy side. Hilly land, inclining to all points of the compass, will vary moss formation accordingly.—Meehan's Monthly.

Waste of Plant Food in Soils.

All tilled soils are subject to a constant waste of the plant-food element—that is, nitrogen, potash and phosphoric acid. Soils contain as a natural condition all three of these necessary substances, the potash and phosphoric acid as a constituent of the rocks which by disintegration from the great bulk of our soils, and the nitrogen in the form of vegetable matter, the residue of plant growth. A pure soil of course contains no vegetable matter, but furnishes a medium for the growth of plants of the clover family, which have the power, when supplied with potash and phosphoric acid, of assimilating the inert nitrogen of the atmosphere. The decay of the roots, etc., of this class of plants supplies nitrogen for the growth of plants which cannot make their own nitrogen, so to speak, and thus, step by step, we have the agricultural soil of today.

Plant food must be soluble in soil waters before plants can make use of it to accelerate growth; and it is in this point the greatest losses occur. For example, if our plant food is made soluble than the plants in that immediate spot can assimilate, the quantity not taken up passes on with the drainage water, to be taken up more or less by the feeding roots of plants it meets in passing on to the water courses. More or less falls to be utilized in this process, and ultimately finds its way to the ocean where it serves to grow marine plants. Nitrogen is subject to losses in addition to this. By the action of certain bacteria, the nitrogen in decaying vegetable matter is converted into ammonia, which may escape in the air as a gas, or this ammonia by the action of other micro-organisms may be changed back into the inert form of nitrogen as found in the atmosphere, and which is useless as plant food.

A great deal may be done to lessen these losses, though they can never be wholly prevented. The heaviest losses occur in the fall, winter and early spring, when the surface evaporation of water is light, and the drainage into water courses consequently heavy. Under these conditions, the soluble plant food, made so by the season's tillage, is freely washed into the drainage channels. By keeping the soil covered with catch crops much of this loss may be prevented, but it is not always possible to use a cover crop. For this purpose, rye, scarlet clover, cow peas and field peas are used, and should be used wherever possible. Fall plowing is excellent in improving the physical condition of a soil, but the plant food thus liberated is woefully wasted by the spring rains.

This wastage is a condition which we have to consider as a practical fact. One of the important matters in connection with water to take into consideration is the probable disturbance of the plant food balance by such losses. Nitrogen we may disregard, as we can win that back by the growth of legumes—clover, cow peas, etc. Potash and phosphoric acid present a different problem. Potash is subject to severe losses, as when it is soluble in water there are few combinations which render it again insoluble. Phosphoric acid, on the other hand, is very apt to take insoluble forms, and the loss of this plant-food element is rather slight. Every particle of lime encountered by the solution of phosphoric acid at once fixes it against loss. All these points must be considered in figuring on any scheme to maintain the fertility of the soil by applying manures or fertilizers.

V. J. LANE.

Fruit in Boston Market.

Apples are steady in price, with the market still amply supplied with common stock. Baldwins and Greenings \$1.25 to \$2 per barrel, Gravensteins \$2 to \$2.50, Pippins \$1 to \$1.50, Hubbard's \$1.25 to \$2, Penn's Sweet \$1.75 to \$2, Twenty-ounce \$1.25 to \$1.75, Snow and Wealthies \$2 to \$3, Maine Harveys \$1.50 to \$1.75, Kings \$2 to \$3, Talman Sweet \$1.50 to \$2.25, common apples 75 cents to \$1.25, box apples, cooking 25 to 50 cents, choice eating 75 cents to \$1.25. Small lots and jobbing from 50 cents to \$1 per barrel more.

The export movement in apples continues heavy, though three steamers were held until today, which will bring their cargoes into next week's record. Receipts are larger. For the week the receipts were 96,933 barrels, against 20,947 barrels for the same week last year. For the week the exports were 26,938 barrels, including 19,739 barrels to Liverpool, 4163 barrels to London and 3036 barrels to Glasgow. For the same week a year ago the shipments were 2827 barrels; same time in 1900, 25,368 barrels; total since the season began 436,491 barrels; same time in 1901, 75,353 barrels; same time in 1900 565,642 barrels.

A few Catawbs grapes are coming forward, and sell at 18 to 20 cents. California Emperors sell at \$1.75 to \$2.25 per crate and Cornishons at \$1.75 to \$2.25. Foreign grapes sell at \$4 to \$8 per barrel.

For the week the receipts of grapes were 1198 barrels foreign, 27,739 baskets and 4620 carriers domestic; same week last year, 2101 barrels foreign, 56,343 baskets and 1076 carriers domestic.

Pears are about out of the market, but a few are still offering in a small way from cold storage. In a jobbing way they are quoted at: Buero Bosc \$4 to \$4.50, Buero d'Anjou \$2 to \$3.

There is a good supply of oranges, principally from Jamaica and Florida. A few Californians came in during the week. Jamaica oranges are quoted at \$3.75 to \$4 per



SOME OF THE MOST POPULAR FALL BULB PLANTINGS.

box and \$6 to \$7 per barrel. Floridas sold at \$3.25 to \$3.75. For the week the receipts of oranges were 3224 boxes Floridas, 3320 boxes and 1622 barrels Jamaica, 600 boxes Mediterranean and 725 boxes Californian. For the same week last year the receipts included 4250 boxes Floridas, 2785 boxes, 2228 barrels Jamaica, 215 boxes Valencia and 6390 boxes Californian.

California lemons are easier, at \$4 to \$5 per box for 300 counts, \$4 to \$4.50 for 300 counts and \$4 for 240 counts. Jamaica grape fruit is quoted at \$4 to \$5.50 per box.

Cranberries are firm and higher: Barrels \$6.50 to \$8.50, crates \$2.25 to \$2.75; jobbing 50 cents to \$1 more. For the week the receipts of cranberries were 1001 barrels; same week last year, 1921 barrels. Turkish figs are quoted at 12 to 15 cents per pound, as to package and quality. California figs are quoted at \$1 per box. Persian dates sell at 4 1/2 cents per pound, with Far dates at 5 1/2 cents in bulk and 6 1/2 cents for ten-pound boxes. Nuts are in good supply and sell at: Walnuts 11 to 13 1/2 cents per pound, chestnuts 9 to 11 cents, filberts 11 to 12 cents, Texas pecans 11 to 15 cents, almonds 12 to 15 cents or hard and 15 to 17 cents for soft shells.

Vegetable Market.

There is a firm market for potatoes, with a better demand: Houlton Green Mountains 80 to 85 cents, Hebrons 70 to 75 cents per bushel, York State Green Mountains and white 68 to 70 cents, Western 65 cents, Virginia sweet \$1.50 to \$2 per barrel, double heads \$2.50 to \$3.

The supply of Boston market celery is not so large and prices are firmer, at \$4 per long box, three dozen to the box, Paschei \$2 to \$3 per long box, white \$1.50 to \$2 per long boxes, cantaloupes \$1.50 to \$2 per long box, lettuce \$1.25 to \$1.50 per long box, radishes 75 cents to \$1.50 per box.

Onions sell at \$2 per barrel, with jobbers by the bushel higher; Spanish long crates \$2.75. Cucumbers sell at \$10 to \$12 for choice, medium \$4 to \$6, No. 2 \$3 to \$4. Hothouse tomatoes sell at 35 to 50 cents per pound. Cabbages are quoted at 60 cents per barrel, Savoy 50 cents per barrel. Marrow squashes are quoted at \$15 per ton, Hubbard \$20, Turban \$15 to \$20 per ton. Pumpkins sell at 25 cents per box. Mushrooms are scarce, and sell at \$1.50 to \$2 per 4-pound box.

Yellow turnips sell at 75 cents per barrel, white French \$1 per barrel, white flat 25 cents per box, beets 50 cents, carrots 50 cents, parsnips 30 to 60 cents, egg plants \$1.50 to \$2 per crate, mint 75 cents per dozen, cress 50 cents, parsley \$1 per bushel for hothouse, salad 75 cents per dozen. Brussels sprouts 8 to 10 cents per quart by the crate. Southern string beans sell at \$2 to \$2.50 per basket for green and wax. Spinach sells at 40 cents per bushel, escarole 40 cents per bushel, endive 25 cents per bushel, romaine 75 cents per bushel, artichokes \$1 per bushel.

The Hay Trade.

The hay markets throughout the country are in steady condition, especially owing to a decided shortage in transportation facilities, which undoubtedly keeps the markets firm. Our reports show a large falling off in receipts in some of the markets, although receipts are about equal to the trade requirements. When receipts increase largely lower values will be inevitable. As usual, good stock commands first attention, and is kept well cleaned up. There is always a lot of poor hay arriving, which is difficult of sale.

Statistics relative to the carrying capacity of the railroads of this country show that more rolling stock is needed. No doubt the carrying capacity of railroads has been increased, but mainly through enlargement of cars and increase of power of engines. There are, however, not cars and engines enough to make up a sufficient number of trains to take goods promptly from all points where there is demand for shipment. The railroads should add to their rolling stock as soon as possible, in order to be fully prepared to handle the business that is coming to them in the future.

In New York city demand from consumers is of good volume, and promises fair business for the month. Prices of lower grades do not exhibit as much strength as last week, owing to considerable increase in the supply. Total receipts for the week in New York were 5094 tons, against 5615 tons the previous week, and against 13,515 tons same week a year ago. Receipts of straw were 880 tons, as against 790 tons the previous

week. We refer to our market reports for prices of hay, both in Boston and New York markets.

In Boston receipts of both hay and straw are quite liberal. There is some accumulation of the cheaper grades of hay, and also of ordinary and stained rye straw, and prices are easier for everything except hay and straw of the very best quality. Receipts were 300 cars of hay, 57 cars of which were billed for export, and 32 cars of straw. The corresponding week last year showed receipts of 330 cars of hay, 113 cars of which were billed for export trade, and 34 cars of straw.

Among the subjects of discussion at the recent meeting of the Illinois Farmers' Club was the question of the shrinkage of hay and corn in storage. As to hay, a McLean County farmer stated that bales of hay weighing 125 pounds when first put up shrank to 116 pounds. Another Sangamon County farmer said his hay shrank twenty pounds per bale. Discussing the shrinkage of corn, Mr. F. A. Warner stated that on Dec. 6, 1901, 20,025 pounds of corn were put into a crib set on scales. This was weighed every Saturday afternoon until Sept. 25 of this year, when it was found that the corn weighed 19,035 pounds, a shrinkage of practically five per cent.

The following shows the highest prices for hay, as given in the Hay Trade Journal, in the markets mentioned, Nov. 28, 1902: Boston \$19.50, New York \$19.50, Jersey City \$20, Philadelphia \$18, Pittsburgh \$16, Pittsburgh prairie \$10, Kansas City \$11, Kansas City prairie \$10, Duluth \$11.50, Duluth prairie \$10.50, Minneapolis \$12, Minneapolis prairie \$11.50, Baltimore \$17, Chicago \$14, Chicago prairie \$13, St. Louis \$13, St. Louis prairie \$11, Richmond \$16.50, Memphis \$14, Buffalo \$16, Louisville \$14.50, Washington \$16.50, Cincinnati \$14.50, San Francisco, wheat hay \$15, Providence \$20, Cleveland \$14, Nashville \$15.

Export Apple Trade.

James Lindsay & Son, Edinburgh, note under date of Nov. 26, sales of Baldwin, under date of Nov. 26, Golden Russets, English Russets and Roxburs \$3.12 to \$3.60, Greenings \$2.88 to \$3.36, finest Newtowns .48 to \$5.04, common Newtowns \$2.80 to \$3.34, Northern Pips \$2.64 to \$3.36.

J. C. Houghton & Co., at Liverpool, under date of Nov. 26, quote arrivals by steamship Umbria 19,000 packages, demand quite active. Newton Pippins \$2.88 to \$6.24, Baldwins \$2.88 to \$3.60, Ben Davis \$2.88 to \$3.36, Golden Russets \$3.36 to \$3.60, Roxburs \$3.36 to \$3.84.

J. C. Houghton & Co. of London, under date of Nov. 26, quote Baldwins \$3.96 to \$4.20, Greenings \$4.32 to \$4.56, Ben Davis \$3.84 to \$3.96, Kings \$4.80. Demand quite active, with prices advancing.

Shipments of apples by the steamships sailing early in December will reach the British markets in time to catch the Christmas trade, and if our friends have any apples to forward we would suggest their doing so at once, as it is hardly likely the markets will be any better after the holidays than before.

The total apple shipments to European ports during the week ending Nov. 29, 1902, were 154,287 barrels, including 26,938 barrels from Boston, 47,218 barrels from New York, 35,473 barrels from Portland, 44,009 barrels from Montreal and none from Halifax. The total shipments included 54,313 barrels to Liverpool, 33,830 barrels to London, 26,264 barrels to Glasgow and 39,840 barrels to various ports. The shipments for the same week last year were 34,394 barrels. The total shipments since the opening of the season have been 1,416,400 barrels, against 1,416,400 barrels for the same time last year. The total shipments this season include 430,491 barrels from Boston, 410,581 barrels from New York, 20,371 barrels from Portland, 476,726 barrels from Montreal and 30,161 barrels from Halifax.

Messrs. J. C. Houghton & Co.'s cable to Messrs. Maynard & Child Dec. 1 on the Liverpool apple market reads: "Steamship Sachem and bulk of Winifredian selling. Sales amount to 3

MASSACHUSETTS FLOUGHMAN

TELEPHONE NO. 3707 MAIN.

Andrew Carnegie is again in a condition to discuss libraries.

Will Marion ever know just who applied the tar and feathers?

Nothing has yet been said about exorcism rates for veterinarians.

After life's fitful fever ashore the Admiral is probably glad to be afloat again.

We judge that the color of the "Painted House" is either a deep purple or a bright red.

Button, button, who ordered the button? is the way the old refrain now runs in Salem.

As foolish a misstatement as most was the rumor that Harvard proposed to make music a requirement for admission.

And now we have rumors of a duel to be fought down Georgia way with deadly weapons. The duelist who is killed will of course go to Paris.

Truly it is a mean man who forges his wife's name. The act suggests graduation from the earlier feat of shagging pennies out of the baby's saving bank.

Nothing is more open to debate than a loan bill—but the debate is of a kind that can usually be classed as preliminary practice for the discussion of other questions.

One of the advantages of the rapidly with which things move nowadays is that a play based on the Mollusca case will probably have very little interest for the public.

Now it's the Emperor William who has been talking too openly about his relatives in what he might naturally have imagined was a private conversation. But who told on him?

Garrett, Wy., has the first woman justice, and is therefore the first State to follow the precedent that would seem to have been long ago established by the blind lady with the pair of scales.

The Public School Association continues to gather strength with additional years—at all events it gathers the strength of seeing more and more clearly the vital points which it is most necessary to bring to the attention of the public.

Whether or not the U. of P. young men who speculated in tickets for the West Point-Annapolis football game are disciplined in consequence, the incident adds something of very little value to the standing of their Alma Mater.

Cupid has every inducement to get busy. Although we are all supposed to be uncommonly prosperous, there are over two million more bachelors, twenty years old, in the country than there are maidens of the same age. To all of whom we suggest a reading of Balzac's "Memoirs of Two Young Married Women."

A larger proportion of the apple crop is going to waste this year than usual. Even in New York State many are going to waste, by reason of the scarcity of barrels, the coopers not supplying the demand, and by reason of the high cost of fuel to those who have been in the habit of evaporating apples in large quantities.

A large delegation of farmers, under the auspices of the German Agricultural Society, is coming to the United States in April for a three months tour to study American agricultural methods. They propose to visit all sections of our country to endeavor to learn why American farmers stand at the front rank in skill and production.

President Roosevelt, in co-operation with the Interior Department, is determined to oust stock raisers who are illegally occupying millions of acres in the West, especially in Colorado and other Western States. Millions of acres of public land, which ought rightfully to be opened to the homestead settler, are now occupied by stock raisers.

Showing the increased interest in the subject of better roads, Representative Brown has just introduced a bill to create the Department of Agriculture a bureau, to be known as the Bureau of Public Roads, with a director at its head. The purpose is to secure uniformity in road construction and a uniform system of taxation for road purposes.

Considering the fact that the Weather Bureau states the past month to be the warmest November on record for a period of at least thirty-two years, it seems singular to hear that there are five inches of snow in Cumberland, Md., several inches in El Paso, Tex., snowstorm covering wide stretches of country in New Mexico and even in Old Mexico, and the heaviest snow of the season in the Catskills. Of course we may expect snow in northern New England by this date, but it seems odd to think that the Southern States should get ahead of us in this respect.

A large dealer in cattle and beef products from Kansas City, recently in this city, noted what a poor quality of meat is frequently sold, and readily bought by people who seem to know nothing about it. He truly says that wholesome meat must come from a healthy animal. When the animal is muscular the food material is large, since much-used muscle makes rich, juicy meat. Lean beef is firm and elastic, and if it is good will appear purplish red when first cut, becoming bright red when exposed to the air. The best cuts are fine grained and lined with fat. If the meat is dark and mushy, with yellow fat, it is poor. If the cut shows but little fat it means it is from an old animal.

Improved dairy utensils are not of much use to those who do not understand how to use them. There is a story of an Englishman who owned a farm in Africa, and sent out to it a milking stool of the latest pattern. It was found to have been laid aside after some hard usage, because the African help said they could not induce the cow to sit on it while being milked. The story ought to be true, as it was lately told by a missionary in London, who had but recently returned from Africa. We heard not long since of a gentleman farmer who bought for his manager at his farm a separator, and on inquiring how it was liked was told it was a very good thing. After they had skimmed the milk and churned the cream they put

the skim milk through the separator and got a pound or two more of butter. The manager had not learned of the possibility of separating all the milk.

An investigation of the American fruit shipments to England shows that the trade is on a broader basis this year than before. The largest handlers of California fruits say that the season for imported fruits, which is now practically over, save for a few late shipments, has been decidedly successful. It is found that the temperature can be kept right on the slow-steamer lines, which are really just as capable of handling fruit as the ocean greyhounds, and at a less price. Peaches, plums, pears, apples and nectarines have all been successfully shipped. American grapes and green figs, however, cannot compete against the products of the south of France under ordinary conditions. No ill effects have been felt from the Cuban and Porto Rican competition, and Englishmen do not expect to get better bananas than they are now receiving from Jamaica. Porto Rican pineapples do not seem to be suited to the English market.

Phenomenal success is reported by the truck farmers in western Tennessee, along the lines of the railways, arousing increased interest in horticulture. The tomato growers, in particular, reap a rich harvest during the season, and an invasion into this field is threatened. It is reported that tomato clubs, backed by commercial organizations and business men individually, are being organized in a number of towns in the vicinity of Humboldt, Tenn. One club, it is said, will cultivate fully five hundred acres to tomatoes the coming season. In a number of other towns clubs have been organized with a large acreage. The railroads are offering all the towns which will put in considerable acreage the reduced rates on truck products. The most serious feature of the situation will no doubt be the scarcity of labor for this class of work. The common negro laborer of the country is not intelligent enough for the cultivation of tomatoes, and only a limited number of white families are available for the purpose. Much of the labor desired may have to be imported.

Among the salient features of President Roosevelt's message are the following: The plain people are better off than they have ever been before. There are more deposits in the savings banks, more owners of farms, more well-paid wage-workers in this country than ever before in our history. To remove the tariff as a punitive measure directed against trusts would inevitably result in ruin to the weaker competitors who are struggling against them. Our aim should be not by unwise tariff changes to give foreign products the advantage over domestic products, but by proper regulation to give domestic competition a fair chance; and this end can not be reached by any tariff changes which would affect unfavorably all domestic competitors, good and bad alike. The question of regulation of the trusts stands apart from the question of tariff revision. Our past experience shows that great prosperity in this country has always come under a protective tariff, and that the country cannot prosper under tariff changes at short intervals. Moreover, if the tariff laws as a whole work well, and if business has prospered under them and is prospering, it is better to endure for a time slight inconveniences and inequalities in some schedules than to upset business by too quick and too radical changes. No country has ever occupied a higher plane of material well-being than ours at the present moment. Never before has material well-being been so widely diffused among our people. Of course when the conditions have favored the growth of so much that was good, they have also favored some of the growth of what was evil. Let us not in fixing our gaze upon the lesser evil, forget the greater good. The evils are real and some of them are menacing, but they are the outgrowth of prosperity. This industrial development must not be checked, but side by side with it should go such progressive regulations as will diminish the evils.

Our Agricultural Advance.

Following is a summary of the arguments and general plea of a paper entitled, "Our Agricultural Advance," presented at the meeting of the Massachusetts State Board of Agriculture at North Adams, Dec. 2, by Mr. F. A. Waugh, Massachusetts Agricultural College, Amherst.

The facts presented in the foregoing paper may be classified and summarized as follows:

1. Area of Farms—It has shown that the average area of farms has increased slightly in the United States during the past twenty years, the increase amounting to about ten per cent. In Massachusetts, however, the average farm area has remained about stationary.

2. Ownership of Farms—There has been a steady decrease in the proportion of farms operated by owners in the United States. This decrease, though still well marked in Massachusetts, has been considerably less than in the country at large. The change in the proportion of owners operating farms has occurred, apparently, not by former owners losing their farms, but by the purchase of farms as investments by people who cannot operate them. This point, however, cannot be demonstrated, and should not be insisted on too strongly.

In both these matters, i. e., area of farms and ownership, our American agriculture seems to have been moving toward a more extensive practice. This view, however, is not supported by other data now to be cited.

3. Improved and Unimproved Farm Land—The proportion of unimproved land as compared with improved land has been steadily increasing in the United States. In Massachusetts the amount of improved farm land is not only relatively, but absolutely, less than it was twenty years ago, the amount having fallen in that time from a little over two million acres to a little over one million.

4. Value of Farm Products—In spite of the reduction in the proportion of improved farm lands, agricultural production has enormously increased. During the last decade the value of agricultural products has increased ninety-two per cent. in the United States; and that with an increase of only fifteen per cent. in the amount of cultivated land. In Massachusetts the increased production has amounted to fifty-one per cent., with an absolute decrease of twenty-two per cent. in the amount of land under cultivation.

5. Productiveness—The efficiency of intensive cultivation may be yet more clearly shown by the comparative productiveness of small farms. Statistics for the United States show that the productivity of farm land is inversely proportional to the size of the farms. This formula may be called the law of productivity.

6. Population—The population of the country has increased rapidly during the

last twenty years; but this increase has been much more rapid in the cities than in the rural districts. Massachusetts has now eighty-seven per cent. of the total population of the State resident in cities, an increase of twenty-one per cent. in twenty years. This means a marked enlargement of the farmer's market. In fact, taking Massachusetts alone, the farmer's market in twenty years has been multiplied by 34.

7. Localization—It is easily shown that our American agriculture exhibits this further mark of progress, that the production of special crops is becoming more and more localized. This is a practical advantage in that it utilizes special soils and exposures for the crops best suited to them; and it is a commercial advantage in that it helps to consolidate the business of handling, transporting and selling the crop.

8. Specialization and Unequal Development—It can be shown that our agricultural industries have been greatly specialized during recent years; and it appears, furthermore, that the various specific branches of agriculture have developed with marked inequality, whether we consider the country as a whole, or one State, county or town at a time. The law which seems to govern this inequality of development is this: The rate of development in the several branches of agriculture is proportional to degree of specialization, refinement, or intensiveness of the practice involved.

The general plea, closing the paper, was that the development of our agricultural industries, especially in the Eastern States, is toward intensive rather than extensive farming. The greatest advances are being made by the most intensive specialties. They lead the way. Now the most refined and intensive specialties are those of a horticultural nature—fruit growing, gardening, glass-house farming, etc. These branches, therefore, deserve to be especially fostered. Their value should not be estimated by the number of dollars invested in them, but by the influence which they have on the general agricultural advance.

The Culture of Prunes.

Not all of the great West is dry and arid. Although it is stated by the irrigation advocates who are urging the idea that the reclamation of the arid region is a great national question, and that it would be a benefit to the entire country, as stated in general terms that the Western half of the United States is arid and unproductive without irrigation, supporting but five million people, whereas the Eastern half contains seventy millions. This is not strictly true, for there are some individual sections on the Pacific coast where there is natural rainfall, and where large crops are raised without artificial watering. Parts of Oregon and Washington even have excessive rainfall.

San Jose, Cal., about fifty miles from San Francisco, is the centre of a fruit section where magnificent crops of apricots, peaches, etc., have been grown for years under nature's waterings. This is possible, perhaps, owing to the great depth and richness of the soil. It is black and loamy, and in one instance, at least, that I observed, dirt that came out of the bottom of a sixty-two foot well was the same as the surface soil. No one knows where hard pan can be found.

Still, even here, the growers are many of them putting in pumping plants as an insurance against drought, and they say that it pays them. The California irrigator would probably irrigate wherever he settled. A little three-horse power gasoline engine will pump enough water to irrigate ten acres, and much can be raised and made from ten acres of good land.

San Jose's great crop is prunes—thousands and thousands of acres of them, mostly in small orchards of ten and twenty acres with homes in their midst—a kind of agriculture which builds up a country. There seems to be no such thing as a failure of the prune crop. One year the trees will be so full that the prunes are small, the following year the crop will be light—one but the fruit will be so much larger as to make the yield perhaps even more profitable. Size counts. I saw in a packing-house two piles of prunes side by side. Both were composed of good prunes, but in one they averaged forty to the pound and were worth eight cents, and the others were probably 120 to the pound and were worth only one cent a pound. It is impracticable, however, to thin the fruit on the trees. Prunes and apricots are always in season.

Prunes are, as every one knows, simply plums. They are shaken off the trees and put in trays three by eight feet, and left in the sun to dry (there are a few evaporating plants, but nothing is better than sun-dried fruit.)

The Campbell drying and shipping plant has handled five million tons of fruit this year. At one time they had seventeen acres of trays of prunes drying, and their value was \$2000 an acre. This represents the product of one acre of hundreds of farms. An acre yields from four to fourteen tons of fresh prunes, as there are all kinds of prune growers.

Prunes are worth this year, fresh, 24 to three cents per pound, according to size. Drying reduces their weight one-half. Prunes, like most everything else, must be "prepared" for sale. Nothing can improve the prune just as it comes off the drying tray. But it is then of a reddish black and dull in appearance. So it is boiled for two or three minutes and treated with a solution of glycerine, alcohol, and gum, which makes it look black, glossy and rich. Then it is packed in boxes, twenty or forty pounds and sent East in carload lots.

A few years ago, the United States imported large quantities of cheap German prunes. But as Secretary Wilson of the Department of Agriculture said to me once, "Our growers are getting after them with a sharp stick." And today I saw some carloads of prunes going to Rotterdam and Marseilles. The frost, it seems, hurt the French crop this year.

A prune which runs forty-five to the pound is a very fine one. A prune which runs thirty to the pound is seldom seen and it is worth much. A prune which weighs twenty-five to the pound is simply immense. With the exception of picking time, a man can take good care of ten or twelve acres of prunes, and raise enough other things for his family. The San Jose fruit growers like to have fifteen or twenty acres. Then they can put money in the bank. The man who raises prunes is likely to have as well on his place, peaches, apricots, apples, oranges, lemons, pears, figs, almonds, walnuts and cherries.

The following recipe for prune pudding was given me by Mrs. Emma S. Meder, who lives with her husband in a pretty little ten-acre fruit orchard near San Jose in the Santa Clara valley. She assured me that this is almost a "plum" pudding: Santa Clara Valley Prune Pudding—One cup of Graham flour, one cup sweet or sour milk, one-half cup syrup, one teaspoonful soda in milk, salt and spices to taste, cinnamon and cloves, two cups chopped prunes or one cup of raisins. Steam three hours. Serve with hard sauce.

Notes from Washington, D. C.

The Bureau of Animal Industry is now much disturbed over the disclosure of the prevalence of the dreaded foot and mouth disease among cattle, sheep and other ruminants and hogs in the New England States.

On Thursday Secretary Wilson issued an order to the various railroads of the country, notifying them of the establishment of a quarantine of the live stock affected in the New England States, and also prohibiting the exportation of such animals from the port of Boston until further orders.

Recent investigations by the Department of Agriculture disclosed the fact that foot and mouth disease exists to an alarming extent in Connecticut, Rhode Island, Massachusetts and Vermont. Dr. Mohler, the expert veterinarian of the department, Dr. Leonard Pearson of the University of Pennsylvania and Dr. James Law of Cornell have visited the infected districts, and it is upon their recommendation that the quarantine has been declared.

In an interview, Secretary Wilson declared that this is one of the most serious problems the department has had to deal with, and should the disease spread westward the calamity would be a national one. In a talk to the President's Cabinet on Friday, he expressed the opinion that possibly the disease has prevailed in New England for some time and had been concealed. Dr. Salmon, the chief of the Bureau of Animal Industry, has stated, would be sent to the affected district at once.

In this connection, it is interesting to note that most of the veterinarians of the department have never seen a real case of foot and mouth disease, so that its appearance would not likely cause suspicion. Some years ago it appeared to a slight extent in Massachusetts, but through the stringent measures adopted by the department, it was quickly stamped out.

Foot and mouth disease exists to a great extent among the various European and North African countries, and is the principal reason for the prohibition of importation of milk and other goods from abroad into the United States. It is said that there is no country abroad where fine milk goats are raised but what is affected by the existence of the foot and mouth disease.

Wherever it has been put into operation, the rural delivery of postal matter has not only brought about a great improvement in local conditions, but it has increased the postal receipts in many cases very largely. No deficiency, it is believed by the postal authorities, will ever be created by this service, which has now become a permanent feature of the Postoffice Department. Extension to rural carriers of power to receive and register letters has proved so acceptable a public benefit that it is proposed further to provide an extension of the money-order system to rural routes. Rural carriers are now empowered to receipt for money orders, and it is intended after the first of the year to authorize them to pay money orders at residences of known patrons of the routes.

Boston Provision Market.

There is an easy market for pork provisions, with a substantial decline for the week. Cut meats were marked off again Saturday: Short cut and heavy backs \$22.50, long cut \$22.75, medium \$21.25, lean ends \$23, bean pork \$17.50 to \$18.25, fresh ribs 12 cents, corned and fresh shoulders 10 cents, smoked shoulders 11 cents, lamb 11 1/2 cents, in pairs 12 to 12 1/2 cents, hams 12 1/2 to 14 cents, skinned hams 13 cents, sausage 10 cents, Frankfurt sausages 10 cents, boiled hams, 15 to 18 cents, bacon 15 to 16 cents, bologna 9 cents, pressed hams 12 cents, raw loaf lard 12 cents, rendered leaf lard 12 1/2 cents, in pairs 13 to 13 1/2 cents, pork tongues \$24.50, loose salt pork, 11 1/2 cents, brisquets 12 1/2 cents, sausage meat 9 cents, country dressed hogs 8 cents.

The kill of hogs for the week by Boston packers has been large, though not up to the previous week. The total for the week has been about 35,200, preceding week 41,000; same week a year ago 40,000. For export the demand has been slightly less than for the previous week, the total value by Boston packers having been about \$250,000; preceding week, \$285,000; same week last year, \$360,000.

There has been an increase in offerings of hogs, but a decided decrease in comparison with a year ago, says the Cincinnati Price Current. Total Western packing 500,000, compared with 495,000 the preceding week and 540,000 two weeks ago. For corresponding time last year the number was 740,000 and two years ago 625,000. From Nov. 1 the total is 1,905,000, against 2,285,000 a year ago, a decrease of \$20,000. The quality is good in most instances. Prices have receded from the advance of the preceding week, closing with an average of about \$6.05 per 100 pounds for prominent markets, compared with \$6.20 the preceding week, \$6.05 two weeks ago, \$5.70 a year ago and \$4.80 two years ago.

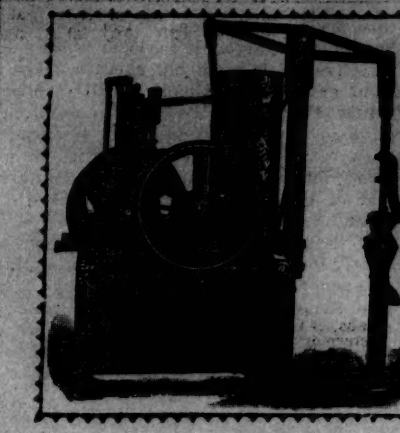
Fresh beef has been rather quiet all the week, as usual at Thanksgiving time. Prices are fairly steady, and an advance is expected in the near future, though the situation indicates that it will be small if any more. Upward is made: Extra sides 10 cents, heavy 8 to 9 cents, good 7 to 8 cents, light grass and cows 6 to 6 1/2 cents, extra light 12 cents, good 10 to 11 cents, light 7 to 9 cents, extra fore 7 to 7 1/2 cents, heavy 6 to 7 cents, light 5 to 6 cents, backs 8 to 9 cents, rattles 4 to 6 cents, chunks 5 to 7 cents, short ribs 8 to 14 cents, rounds 7 to 8 cents, rumps 8 to 14 cents, rumps and loins 8 to 17 cents, loins 8 to 21 cents.

Beef arrivals for the week were somewhat larger, being 121 cars for Boston and 72 cars for export, a total of 193 cars; preceding week, 117 cars for Boston and 33 cars for export, a total of 150 cars; same week a year ago, 145 cars for Boston and 88 cars for export, a total of 233 cars.

Muttons and lambs stiffened up a little after Thanksgiving, the cooler weather also helping the market; veals are steady and unchanged: Spring lambs 7 to 9 cents, yearlings 6 to 7 cents, muttons 6 to 7 cents, veals 7 to 10 cents, fancy and Brighton 10 1/2 to 11 cents.

Poultry cleaned up very well at Thanksgiving time, owing to the small supply, and choice dry packed sold at very good prices. For the same reason prices have held up well since Thursday, with a fair demand. For the week the receipts were 13,320 packages, against 21,323 packages last year. The quotations are: Western turkeys 15 to 19 cents, Northern fowls 14 to 15 cents, chickens, Western 14 to 16 cents, Northern 13 to 14 cents, local turkeys 17 to 18 cents, fowls 13 to 14 cents, chickens 13 to 15 cents, ducks 15 to 17 cents, Rhode Island geese 18 cents, live fowls 10 1/2 to 11 cents.

There is still a fair supply of venison offering, whole deer selling at 15 to 18 cents, with saddles at 20 to 25 cents and legs at 20 to 25 cents, with skins on. Deer meat



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sells at 15 to 18 cents for whole carcasses. Moose meat is quoted at 10 to 12 cents for the whole animal. There is a fair supply of game. Black ducks sell at \$1.00 to \$1.75 per pair, redhead ducks \$2.50, wild-geese \$1 to \$1.25, teal \$1.10. Philadelphia squabs are firm at \$3.50 to \$4 per dozen, with natives at \$3 to \$3.50, quail \$4 per dozen, plover \$6 to \$7 per dozen.

Orchard and Garden.

The grapevines should be trimmed now when not frozen, and those that are not hardy on the trellis should be loosened ready to lay down. Let them bend naturally, as the trunk will withstand the weather and need not be covered, but when the ground is frozen cover branches with straw, evergreen limbs, cornstalks, or anything to protect them from sun and wind. On this put a few inches of earth to hold it in place, and make a mound of the same around the trunk three or four inches deep to prevent the buds from starting too early in the spring. This is best done when the earth is frozen but two or three inches deep. The covering should not be of fine material like hay or leaves, as that might exclude the air so as to cause rotting. If a snow should chance to come before the covering is put on, shovel enough snow on the branches to cover them well, and tramp it down solidly so that it may thaw out slowly. The covering is to be removed in the spring when the leaves begin to start, but it is not necessary to put the vines on the trellis as soon as this is done. They often grow faster while lying down than they would if exposed to the cold winds.

The Maine Experiment Station says that the Green Gage, Burbank and Moore's Arctic plums head the list in that State. These are all good varieties for a commercial orchard. The McLaughlin is a good variety for home use, as it is of the choicest quality. For home use and a local market there are other varieties that prove good as they extend the season, but many of them vary more in yield and quality according to the soil they are grown on than do the sorts named. At the meeting of the Maine Pomological Society at Farmington, a paper from Mr. E. R. Mayo advocated the selection of plum trees one or two years old, and setting them about fifteen feet apart. He said that ten varieties were enough. In a commercial orchard, and the orchard, last spring he sowed clover and was then having it plowed under, and next year will run the harrow again. Professor Munson spoke on the need of more care in packing and handling fruit for market, and urged the necessity of cold storage on the farm, not only because much is stored in cellars or other places unfit for the good preservation of the fruit, but because there were many farmers who sold at the first offer received, when possibly the market was glutted and prices were low. If they could be kept at home until really in demand, the grower would obtain the better price instead of the speculator or the middleman.

A fruit grower in Patoka, Ill., had occasion to have his house replastered last fall. He took the old plaster and put it around a row of apple trees in his orchard. The entire crop in the orchard had been very badly affected by bitter rot that year, and it was this year, with the exception of the row that he put the plaster on, which was entirely free. The farmers are not all going to knock off their old plastering to dress their orchards with, but it is said that there will be a good demand for lime another season to put in the orchards. But we are not sure that the effect was all due to the action of the lime. It may have been that the broken plaster made a heavy soil sweeter and more friable, and that the same results would be attained by the mulching with a heavy coating of sand and working it in. The physical condition of the soil has almost as much to do with the results on the crop as the fertility has.

At the meeting of the New Hampshire Horticultural Society at Durham Albert DeMerritt of that place discussed apple growing. He believes there is a fine opportunity in New Hampshire for this business, and thinks the Baldwin is one of the most profitable varieties. He has had good success in grafting native apple trees. He set out 150 apple trees when his mother was sixty-four years old. She hoped he would live to derive benefit from them, but said she would not. But she did live to see them produce \$1000 worth in one year. Twenty years after planting they produced 60 barrels of apples per tree. Few fancy apples are worth growing. It pays to graft old trees as long as they will make any growth. Often cutting out the old tops is all they need to revive them.

H. E. Van Deman, the well-known horticultural writer to the Western Fruit Grower that he has been investigating the Black Ben Davis in the section where it originated, and he finds that there are decided differences between that and the ordinary Ben Davis, as it is better flavored than the latter and keeps longer. Under good cultivation it also attains a larger size. It does not receive its name from its color, but from the fact that a Rev. Mr. Black was one of the first to propagate it from the seeds. It also differs from the Gano, as it is solid red, while the Gano is lighter colored and has a semblance of stripes, even when they are not distinct. F. C. O'Brien in the Journal of Agriculture, also speaks of the Black Ben Davis as a sure bearer, with larger apples than the Ben Davis and better flavored.

There has been much trouble in the Western States this year with the plum rot, and some claim the spraying the tree with bor-

deaux mixture has not checked it, but as they say that when a cluster is affected all those near the one showing the rot are able to be affected, this would indicate that they did not think their fruit enough. Two plums should not be left so near together that the rotting of one would affect another. The thinning has the result of making the tree an annual bearer, and the plums will be larger. An overloaded tree is weakened, and sometimes destroyed, by trying to perfect too much fruit. Many, too, do not prune their trees enough, and have too dense a head which interferes with the success of spraying. The American trees need usually more pruning than the European or Japanese varieties. Then, spraying often fails for not being done at the proper time or often enough. As a rule, growers are confident that they have saved their plum crop by spraying, we think that those who have failed to do so must blame the lack of efficiency on their methods and not on the spray, if it was mixed according to the formula.

Not many years ago the English papers either ridiculed the idea of there being any such article as first-class American beef, or claimed that, if there was any such thing, the greedy Americans saved it at home for their millionaires, and sent an inferior article to Great Britain. It was reported that certain dealers sold their best American beef as genuine English beef, and their inferior cuts of English beef as American. But if this was ever true, the prejudice against American meats of whatever kind has now disappeared, and beef, mutton or bacon need no better recommendation than to be labelled "Canadian," while "American," as they call that from the United States, is nearly as good. Yet the Canadian may bear the trade-mark of a Chicago or Omaha firm, and the American that of a Montreal or Toronto firm. We have as good pure-bred beef stock and as good grades in this country as the best grazing country in the British Kingdom, and if not as good pastures, rain soaked or fog drenched for five days out of every seven, we have as good grain to finish the fattening process as they can furnish. With these facts impressed upon the mind of the English buyer, there is no difficulty in obtaining for American beef in England a fair price, equivalent to the price it would sell for here, and possibly enough to well repay the risk of seeking a distant market. Not all of our best beef goes there, but there is some for those who are willing and able to pay the highest prices, and some for those who must be content with a poorer quality in order to obtain a sufficient quantity. Luckily for the poor, the nutritive qualities are not always dependent on flavor or price, and those who have to buy the cheaper pieces are not likely to suffer from lack of quality, as they care more for its "standby" qualities than for little matters of tenderness or delicacy of flavor. It is much the quality of American bacon and beef has helped to create a kindly feeling for us in the lower and middle classes of England, as they are called there, we cannot say, but we believe that it was an Englishman who first said that the road to a man's affections lay through his stomach, and if it was not, it is as true of the Englishman as of other nations, and while they look to us for their food, they will not be very quarrelsome.

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HARD BAG.

Materials.—Two ounces black purse twist, 1 large bunch of black jet-cut beads, and a steel crochet hook No. 2.

String the beads on the silk before you begin to crochet, and always push the bead on the silk before you take the stitch.

Chain 150 stitches, join in a ring, use the short crochet stitch, which is (insert needle in stitch, draw silk through, then through 2 stitches on hook). Crochet two plain rows, when you work the second row; take up both stitches in the top of the first row.

3d and 4th rows.—Plain crocheted with beads. Start the squares by crocheting (*) 5 short crochets and 5 stitches with beads; continue this for 5 rows, when you will have a complete row of squares.

Start the next row with 5 stitches of beads, then 5 plain, and continue for 5 rows. You will find you have a plain square over a beaded one, repeat from (*) until you may finish 18 rows of squares, which you may finish with two plain rows of beads and 20 rows of plain crochets for the top. This will make a bag 9½ inches. In all beadwork the beads will be on the wrong side of the work, and the article being made must be turned over after it is finished.

For a finish across the bottom, fill brass rings with crochets and tie in heavy silk tassels. Or a twisted head fringe may be added. Finish top with a strip of silk seven inches deep. Turn it out at the top. Make a covering with frill. Run in a ribbon draw string.

A pretty fancy work apron is made by taking a length of lawn dotted swiss, or preferably linen, turned up at the bottom divided by rows of stitching into three, pockets, and daintily ornamented with dainty beading, having narrow ribbon run through, and gathered at the waist.

Fruits as Food and Medicine.

That fruit has many uses besides pleasing the taste is well known, but the exact properties of each kind are not so well understood by the consumers, and a few suggestions on the subject may not be amiss.

Fruit alone will not sustain life for any great length of time, but helps to furnish a variety in the diet.

It stimulates and improves appetite and digestion, relieves thirst and introduces water into the system, acts as a laxative or astringent, stimulates the kidneys and supplies the organic salts necessary to proper nutrition.

If the medicinal uses of fruit were understood and care taken to use the appropriate kinds much less medical treatment would be needed.

Among the laxatives are figs, prunes, dates, nectarines, oranges and mulberries.

The astringents are blackberries, dewberries, raspberries, pomegranates, quinces, pears, wild cherries, cranberries and medlars.

The kinds used for diuretics are grapes, black currants, peaches, whortleberries and prickly pears.

The refrigerants are red and white currants, gooseberries, lemons, limes and apples.

Apples are useful as a stomach sedative and will relieve nausea and even seasickness.

Grapes and raisins are nutritive and demulcent, making them excellent for the sick room.

It is sometimes difficult to keep raisins, figs and dates away from the inquisitive little ants and roaches, but this is easily accomplished by putting them in paper bags that have been well brushed over with strong borax water and dried before the fruit is put in. The little pests do not like the borax and will not gnaw through the sack when thus prepared.

A fig split open makes a good poultice for a boil. It is especially useful for gum-boil. A split raisin is also good.

Lemons are very useful in health or sickness. Hot lemonade is one of the best remedies for an incipient cold. It is also excellent in case of biliousness. For malaria the "Roman cure" is prepared by cutting the rind and pulp of a lemon into a pint of water, then boiling until there is only a half pint. One teaspoonful is taken before each meal. This has cured obstinate cases when quinine failed.

Lemon syrup made by baking a lemon twenty minutes and then squeezing the juice upon half a cupful of sugar is excellent for hoarseness and to break up a cold.—The Christian Work.

Care of Jewelry and Silver.

The cleaning and care of jewelry and silverware is a matter that often perplexes the woman who is fastidious about the details of her toilet and her house. In large cities the easiest way is, undoubtedly, to send one's rings and pins to a jeweler when they lose their new look, but silver that is in daily use needs constant attention, and it is a convenience as well as an economy to be able to have it cleaned and polished in the house.

Following are some directions and formulas that will be found exceedingly valuable. They were furnished through the courtesy of William T. Lewis of The Practical Jeweler and Optician.

Regarding the cleaning of diamond jewelry, Mr. Lewis says:

First, wash in benzine, then in castile soap and water to which a little ammonia has been added. Rinse in clear water, dip in alcohol and dry on jeweler's sawdust. This formula holds for all jewelry containing precious stones other than pearls. The theory of it is that the benzine removes the grease, the soap and water removes the benzine, the clear water removes the soap-suds and the alcohol removes the water.

If the gold has lost its lustre through usage or is tarnished, some further treatment is necessary, however. Make a solution out of one quart of water and one ounce of cyanide of potassium, and dip the jewelry in it. Then rinse in clear water and proceed as before from this point.

A word of caution regarding the use of this solution is a deadly poison. It is one of the most malignant substances known to

man. A few drops of the mixture mentioned above would prove fatal, if swallowed. Too much care, therefore, cannot be exercised in its use, and the moment the cleaning process is completed it should be thrown out. Cyanide of potassium costs only a few cents an ounce, and is easily procured. It is hardly worth while to endanger the lives of children and ignorant persons about the house by keeping it over.

If gold is dull and requires polishing, rub with a piece of chamois leather upon which has been placed a small quantity of jeweler's rouge. Wash off the rouge with soap (castile) and water; then rinse in clear water, dip in alcohol and dry in jeweler's sawdust.

Pearl jewelry may be cleaned in the same manner as that containing diamonds, except that the benzine bath must be omitted, and all the operations must be performed very quickly, so as to allow as little time as possible to intervene between the first wetting of the article and placing it on the sawdust.

Pearls are often cemented in place, and this has a tendency to soften the cement, hence the need for speed.

The rule given above for the cleaning of gold applies to all sorts of gold and silver trinkets. It is—ought to be—needless to add watches are not to be subjected to this treatment.

For cleaning silver plate the following mixture is recommended: To two ounces of French (prepared) chalk add one-quarter of an ounce of ammonia, four ounces of alcohol and two ounces of water. Add to this, when the chalk and water are thoroughly incorporated, ten grains of cyanide of potassium dissolved in two ounces of water. The resulting mixture should be of a creamy consistency. To give it a pleasant odor, add twenty drops of oil of sassafras. The oil of sassafras is added purely for esthetic reasons, as it serves no utilitarian purpose whatever. The mixture is to be placed in a bottle and thoroughly shaken before being used.

To apply pour a little into a saucer, dip in the end of a soft jewelry brush and go over the whole surface of the article in question. If this happens to be deeply engraved, use what painters call a "stippling" stroke, which consists of jabbing the ends of the bristles into the recesses and grooves of the chasing. If highly polished do not use a brush at all, as it will make minute scratches.

For use under this latter condition make a pad of cotton flannel filled with cotton wool. Dip this into the mixture, going over the surface with very light, circular strokes. After the article has been restored to its original whiteness, wash thoroughly in hot water and castile soap, rinse in scalding water, and, if it is a piece of hollow ware, like a mug or a cream pitcher, invert it, when it will dry almost instantaneously. Then polish with a piece of clean cotton flannel.

In all polishing of this nature the greatest care should be taken to exclude every atom of dust of every sort from the cloth used for polishing. The best way to insure freedom from dust is to buy several yards of cotton flannel, cut into squares ten or fifteen inches across, and pack away in a box fitted with a secure lid. Then take a fresh piece every time, discarding when the cleaning is over.

For cleaning oxidized, French, gray or any other finish whose silver is altered from its natural state, use only soap and water, followed by rinsing in scalding water, and drying as before. By way of explanation it should be stated that chasing, satin finish, engraving, etc., are to be included in "natural state."

To prevent silver from tarnishing, place a few lumps of camphor in the box containing the silver articles; this will neutralize to some extent the gases which turn silver dark. If silver is to be stored for some length of time, it should be cleaned thoroughly and placed in cotton flannel bags that can be closed tightly at the top. Then these bags should be wrapped in paraffine paper, or still better, in beeswax paper. To make the latter (it cannot be bought) take ordinary manila paper and lay it on a smooth surface covered by a white cloth. Shave the beeswax thickly over the paper and then pass a hot iron over the paper, when the wax will be melted right into the paper.

New silver frequently comes from the jeweler's lacquered; in other words, the surface has been varnished with a solution of gun cotton and ether. This is done by manufacturers to prevent the silverware being tarnished before it is sold; also to keep the surface in good condition. The varnish sometimes peels off, leaving the exposed surface to tarnish. The only thing to do in this case is to place the silver in boiling water for two or three minutes, after which the lacquer can easily be removed. Then proceed to remove the varnish as before directed. Silver can be relacquered in any first-class jewelry establishment.

How to Drink Water.

A beginning of kidney trouble lies in the fact that people, especially women, do not drink enough water. A tumbler of water sipped in the morning immediately on rising, another at night are recommended by physicians. Try to drink as little water as possible with meals, but take a glassful half an hour to an hour before eating. This rule persisted in day after day, month after month, the complexion will improve and the general health likewise. Water drunk with meals should be sipped, as well as taken sparingly.

Ice water ought never to be taken with one's meals, and as little as possible between meals. One never knows what is being taken into the stomach in water filled with chipped ice. It is safer to fill bottles with water and allow them to stand beside ice to chill until required.

Tests have been made which show that one gill of ice water, which means an average tumblerful, poured hastily down the throat, reduces the temperature of the stomach from 100° to 70°, and it takes more than half an hour to recover the heat it has lost. Cold water, slowly sipped, will not be followed by such a result, cooling the system pleasantly in hot weather without chilling the glands of the stomach so that digestion cannot take place.—Detroit Free Press.

Laundrying Table Linen.

In this age of pretty things for the home, there is nothing in which the good housekeeper takes more pride than her table linen. Get a good quality of damask for tablecloths, for it will last a long time, and be more economical in the end than a coarse piece. When tiny breaks occur, draw out threads from a piece of new linen, thread a needle with them, and darn the place carefully. It is better to do this before the cloth is laundered, as the washing is likely to fray the edges.

When fringed napkins or doilies are used the fringe becomes uneven and ragged looking, while the linen is still good. Cut the fringe off and hem them all around.

Remove fruit stains from linen by dam-

pening the spots; rub soap on both sides, then apply starch made into a paste with cold water. Rub the starch into the stains and hang the cloth in the sunshine for several hours. After it is washed in the ordinary way the stains will disappear.

The most expensive linen and the hand-embroidered doilies are often ruined by careless washing. Have a laundry bag hung in a convenient place, and as fast as the soiled linen accumulates put the pieces in it. Prepare a soda of soft warm water and good soap, and add a little powdered borax to it. Wash through this, rubbing lightly between the hands. If the linen is plain, without embroidery of any kind, it may be put in a clean sud and scalded a few minutes. If it is embroidered, wash through two waters, rinse in clear lukewarm water, then dip in blue water to which a very little boiled starch has been added, and dry in the shade. Nothing cleanses the linen so nicely, without injuring the most delicate colors, as borax. When it is always be used in the water. When it is dry, dampen and roll it up, wrap a clean cloth around it, and leave it until it is ready to iron.—Religious Herald.

Exercise for Weak Hearts.

It is not many years ago that the belief prevailed that a sufferer from heart disease was in constant peril whenever he moved, and that the nearer he approached absolute rest the better it was for his heart. This is still true in respect to certain forms of heart disease—those due to actual disease or degeneration of the heart muscles; but when the disease is in the valves, as it is in the majority of cases, the modern teaching is that properly regulated exercise is beneficial. This is founded on the common-sense view that the heart is like other muscles in that it can be strengthened by exercise to meet increased calls upon it.

When the valves of a pump get out of order it requires greater force to move a given quantity of water; if this force can be applied it will make up for the defect in the valves. The same principle holds good in the case of the diseased heart; the valvular defect must be made good—"compensation" is the medical term for this process—by increased strength in the heart muscle.

The heart must be able not only to meet the ordinary, every-day extra strain—this it does automatically, as it were, by the unaided efforts of nature—but it must be stronger than necessary, just as it is in health, to meet some extra strain caused by illness, a sudden nervous shock, or some absolutely necessary exertion. It is evident, therefore, that a diseased heart must be trained to the safety of the patient, be strengthened beyond the requirements of a quiet life.

This is accomplished in various ways, but none is better for the purpose than hill climbing or stair-climbing, the former for pleasant days, the latter for bad weather. The exercise should, of course, be taken under the direction of a physician, for it can be easily overdone, in which case one of the bad conditions against which it is the object of the exercise to provide will be artificially produced, and the heart will be overtaxed before it is strong enough to withstand the extra strain.

The patient should keep constantly in mind the fact that he is not in training to become an athlete or a candidate for membership in the Alpine Club, but is working only to make his heart a trifle stronger than is necessary for his daily needs, so that it may have a small reserve of force to draw upon to meet any sudden and unexpected draft.—Youth's Companion.

Domestic Hints.

CHICKEN BROTH.

Use the legs of a chicken for this dish. Break the joints and cut up the meat into small strips. Pour over it four cups of water, add one tablespoonful of rice and onion, golden brown and yellow. Stir very slowly for an hour and a half. Strain out the rice and meat and cook. Skim off the fat and reheat as much of the broth as is required. In hot weather the rice may sour the broth, so make without and keep the soup in a pan of white ice in the refrigerator.—Good Housekeeping.

GINGER CREAM.

Soak a quarter of a box of gelatine in half a cup of milk for half an hour, then place the bowl over steam and dissolve the gelatine in the milk. Add to it four ounces of granulated sugar and a pint of whipped cream, two tablespoonfuls of preserved ginger chopped fine, two tablespoonfuls of the ginger syrup and a tablespoonful of almond blanched and chopped very fine. Stir until it begins to thicken, pour into a mould and set on the ice. Serve in a glass dish and powder the top with chopped almonds.

GRILLED REEF.

Soak slices of cold meat in the following sauce for one-half an hour: 1 tablespoonful each of salad oil and Worcestershire sauce, three teaspoonfuls of lemon juice, and a dash of pepper. Taste, and a little sliced onion fried in butter. Broil the meat after it has soaked one-half an hour, and if liked the sauce can be thickened with a little flour and poured over the meat when ready to serve.

CHOCOLATE CARAMELS.

One pint of fresh milk, three ounces of chocolate, grated in two pounds of granulated sugar, half a teaspoonful of cream of tartar. Stir until melted, then add half a pint of cream, cook until the mixture is brittle in ice water, then turn into a pan well greased and mark in squares when almost cold.

FRUIT SODA-HILL CRAB.

Clean the crabs and dip them into beaten egg, then in rolled bread crust; season with salt and pepper. Have the frying-pan hot and enough butter in it to keep the crabs from burning. Fry quickly; garnish with parsley.

CROUTONS.

CROUTONS make a nice addition to soups or broths for an invalid. To make them, take some slices of bread, rather stale, cut it up into small diamond-shaped or square pieces, put them on a plate in the oven until quite dry and crispy, then spread them on a broiler over the fire and toast quickly brown; should be served in the soup as soon as toasted and not allowed to stand.

Hints to Housekeepers.

A small bunch of absorbent cotton makes a splendid powder puff for baby's morning bath. Use it as a powder puff, or use it as a brush for a fresh one often than a regular puff would.

To clean fatty denim or cretonne soap pillow covers, where soap and water cannot be used, make a thick paste of starch and water and cover the soiled and stained surfaces; let it remain all night, dry, when it can be brushed off. Repeat the operation if the stains have not entirely disappeared.

Either will clean a pocketbook of glossy tanned leather. From suede, the finest and purest used with great care will remove traces of soil.

The safest way to clean a plaster cast is to wrap it in a cloth and leave it for several days. Brush the powder away carefully and with it will be removed much, if not all, of the grime.

Rugs that have a tendency to curl may be straightened by sewing handkerchiefs or bedsheet corners over the curled sides.

To get comfortably sitting shoes buy them in the afternoon when the exercises of the day have stretched the muscles to their largest extent.

Do not neglect to frequently pour household

ammonia, or some other disinfectant, down all waste pipes especially in summer time.

In case a piece of the skin of a bee remains in the wound extract it with the fingers or a small pair of tweezers. The best application for the inflammation is diluted ammonia water, after which a cloth covered with sweet oil should be placed upon the part.

Milk and butter should be kept covered when in the ice-chest, as they readily absorb the flavor and odor of other foods.

If table silver be washed with hot water and soap with occasionally a little ammonia, it can be kept bright without powder or paste.

Souffles of all kinds may be baked in the large or small ramekins. For cheese soufflé make a sauce of two tablespoonfuls of butter, three tablespoonfuls of flour, one-half cupful of hot milk, a saltspoonful of salt and a dash of paprika. When it is smooth, stir in four table-spoonfuls of grated cheese and the yolks of three eggs and remove from the fire. When the mixture is cool, fold in the stiffly beaten whites of the eggs, turn into the baking dish and bake twenty minutes in a slow oven. Souffles, under all circumstances, should be served as soon as they come from the oven, and in the dishes in which they are baked.

A card case of favorite design is made of turquoise-colored beads.

A dinner appears too heavy for mince or pumpkin pie, try a simple frozen custard with a frozen plum pudding. For the latter beat the yolks of six eggs until creamy, pour over one pint of milk scalded, a cupful of sugar and a teaspoonful of extract of cinnamon. Cook until this mixture coats the spoon, then add four tablespoonfuls of melted chocolate and a pint each of chopped fruit and cream. Freeze and pack in a mould for several hours.

In place of the old-fashioned chicken-pie, once indispensable as the turkey, on the Thanksgiving table, chicken patties with collared and melted chocolate and a pint each of chopped fruit and cream. Freeze and pack in a mould for several hours.

Peppers and remove the seeds. Fill them with sweet pepper or cayenne mixture, replace the stem part, and bake in the oven until the peppers are soft.

Fashion Notes.

White ermine and broadtail are very much used for vests and revers on reception and visiting costumes of cloth and velvet.

Costumes of opal-gray broadcloth or zibeline trimmed with white panne velvet, and collars and bands of Siberian squirrel fur, are just now very fashionable, both here and abroad. There are single, double and occasionally triple vest effects on the fronts of the open Louis coats.

Among the materials that dressmakers are favoring for evening dresses for the winter are lustrous satins in rose color, opal gray, sea green and Persian mauve, broadened with silver thistles, carnation and sweet pea blossoms, hawthorn sprays and half-blown roses and foliage, chrysanthemum brooches and other floral designs. Pale shadowy chamois silks are veiled with sequined net and made up in Empire style, with slashed elbow sleeves and Russian girdle of Norwegian silver thickly studded with mock jewels.

Kid cloth in black, tan, brown, gray, fawn and other neutral tones has been extended extensively for reception gowns and fur-trimmed costumes for visiting and theatre wear. It is preferred by many dress designers to satin-faced cloth, as it has the soft velvety surface of an undrained glove. It lends itself to the new designs, well tucking, folds and strappings, and adapts itself admirably to the figure.

The Louis XV. coat in velvet, lustrous silk or handsome satin-faced cloth is one of the most fashionable of the season. The new coat, in fact, is made in this style have the skirts in two different lengths, with the sleeves reversed in cuffs to any preferred depth. To a tall, well-proportioned figure this style of coat is extremely becoming. A dark-blue velvet model has a vest of white satin broadened with matching revers and turn-down collar bordered with dark mink. Another coat of moire velours has vest and revers of white cloth, striped with gold and silver braid, with buttons to match and trimmings of children's hair.

A third model is of black velvet, with the lining of Pompadour broadcloth. The vest is of Limerick lace, with the designs outlined with tiny threads of black chenille. A practical development of this graceful garment would be in French camel's hair finished with stitched strappings, with collar and cuffs of black panne or plain black velvet.

The Hardy Scotch chevrons are popular for shopping, traveling and walking costumes. The new weaves are soft in color, with blendings of almond, tan and green, golden brown and russet, violet, gray and Roman red, etc. Other patterns show a fine mixture of delicate feather colors.

The popularity of self-colored cloth costumes remains unchanged, which is not to be wondered at, since these handsome fabrics lend themselves to almost any kind of garment. In one tulle-trimmed there is an opera dress of mauve cloth, over which is to be worn a cloak of white velvet, lined with mauve broadcloth, with yoke and collar of white velvet, and again the revers, cuffs and turn-down collar bordered with dark mink. Another coat of moire velours has vest and revers of white cloth, striped with gold and silver braid, with buttons to match and trimmings of children's hair.

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The American Ship in 1902.

THE PRESENT FLIGHT OF OUR DEEP-SEA FLEET.

In the November Scribner's Winthrop L. Marvin discusses the present position and outlook of American deep-sea shipping. We abstract as follows:

We of America, taking account of our meagre deep-sea tonnage, cannot but wonder at the sharp trans-Atlantic alarm at Mr. Morgan's sudden purchase of half a dozen of the best British lines and his alliance with the two large German companies. Our foreign merchant fleet was never before so shrunken: it never carried so small a proportion of our own commerce.

DOMESTIC VS. OCEAN CRAFT.

Our marine is in two wide-apart classes. By far the larger is the immense fleet of 4,382,645 tons in the coasting trade (including Porto Rico and Hawaii), and on the lakes and rivers. For over a century this traffic has been reserved to American ships and seamen, and has now attained almost double the tonnage of 1861 (2,704,544).

Our foreign marine, exposed to merciless competition, stands at only 879,595 tons, little more than one-third of the tonnage of thirty-one years ago (2,496,894). Up to 1850-55, the deep-sea carriers were the more prosperous and important half. Our ocean fleet fell off between 1850 and 1900 over one hundred thousand tons. During this decade we built 206,771 tons of deep-sea shipping and gave 134,859 tons of foreign-built shipping American registry. Yet our deep-sea fleet meanwhile decreased from 946,685 to 826,684 tons; for every ton added, almost two tons have been sold, wrecked or worn out.

A FEW ADDITIONS.

Several large liners launched in the present year are just entering service. Two, the Kronland and Finland of the International Navigation Company, from the Cramp yard, are the greatest ships we have yet produced. Their speed is seventeen knots, their tonnage 12,750, or one thousand more than the St. Louis and St. Paul. Next come the Pacific Mail liners, Korea and Siberia, of 11,276 tons and nineteen knots; then the ocean freighters Shawmut and Tremont of the Boston Steamship Company, huge economical carriers entering a new service to the Orient. The first four ships belong to corporations subsidized for mail carrying. Six other ships building are for the Atlantic Transport line, ordered several years ago in expectation of a subsidy bill.

Beyond these few, no large deep-sea vessel is building. American yards of a thoroughly new, progressive type exist far in excess of present demand.

BUT A HANDFUL OF LINES.

On the sea is the same state of arrested development. Established American lines are easy to number. There is the International Navigation Company's mail service, with four steamers from New York to Southampton, the only fleet beneath the Stars and Stripes. Then there is the Pacific Mail service to Central America and Asia. There is the Oceanic line from San Francisco to Australia. There are also the Ward line from New York to Cuba and Mexico, the "Red D" line to Venezuela, and the United Fruit Company's service to Jamaica.

Beside these, our registered tonnage consists of a few freight steamers and sailing vessels. The latter number 354,729 tons and are constantly decreasing. The last wooden full-rigged ship built was the Roanoke, 3500 tons, at Bath in 1892.

AMERICAN SHIPS MORE COSTLY.

American ships, as proved by experience of the Boston Steamship Company, cost more for construction than foreign ships, and considerably more for maintenance. British shipyard wages are only one-half those in the United States; and as British yards launch twice as much in a year as we do in a decade, this economy of construction permits economies sufficient to offset cheaper materials elsewhere. More over, shipbuilding in Britain is highly specialized, while with us it is diffused and hence more expensive; the English also have far the greater experience. As regards crew wages, those on American and British ships of the same type were found to be \$14,580 and \$11,532 a year respectively.

NO HELP FROM MORGAN MERGER.

Mr. Morgan's shipping merger involves no direct advantage to our struggling deep-sea fleet any more than an investment of his in Yorkshire woolen mills would promote our woolen manufacturing. Its chief service is in demonstrating that American capital is now ready to seek the sea. The Morgan millions would go just as quickly into an American fleet if equal inducements were offered.

The huge size of our domestic fleet—many times that of Great Britain or any other maritime nation—is sufficient proof of the abilities of American shipowners, builders and seamen if only they have fair economic opportunity. Indeed, the history of the whole American merchant marine, from its beginnings under the old navigation laws of 1793, suggests that there is not one form of human endeavor for which our race has more conspicuous native aptitude.

Foot and Mouth Disease.

Since our last issue the outbreak of foot and mouth disease among the cattle of New England has grown more serious, and Dr. Austin Peters, chief of the Massachusetts Cattle Bureau, communicated at once with the Washington authorities of the Agricultural Department, rendering in sending of Dr. D. E. Salmon, chief of the United States Bureau of Animal Industry, to Boston, with

Horse Owners Should Use

CAUSTIC BALSAM

THE GREAT FRENCH VETERINARY REMEDY.

A SAFE, SPEEDY AND POSITIVE CURE.

Prepared by Dr. J. G. Bouchard, of Paris, France.

It is a HUMAN PREPARATION, and is safe for all animals, and is the only one of its kind.

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DAN PATCH, 1.59 1-2, CHAMPION PACER OF 1902.

Loaned by the American Horse Breeder.

a corps of veterinaries.

This disease will now be handled by United States authorities, in co-operation with the Massachusetts Cattle Bureau. Acting Secretary of Agriculture Moore has issued the following public notice:

"The Board of Agriculture of Great Britain, in consequence of the outbreak of foot and mouth disease in New England, has issued an order prohibiting the landing in the United Kingdom of beef animals from Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut. The British Board of Agriculture asks that public announcement of this fact be made in this country. Dr. Salmon is now in Boston, and in accordance with directions of Secretary Wilson, orders have today been issued sending a number of veterinary surgeons and experts to New England to report to Dr. Salmon, and assist him in stamping out the disease."

The department at Washington has ordered upwards of twenty veterinary surgeons in the Bureau of Animal Industry service in various Western States, to proceed at once to New England, to augment the force of experts already at work here in fighting the epidemic. This force will also be added to by the inspectors relieved from duty, owing to the cessation of exports to Great Britain. It is not yet known where the epidemic originated.

Dr. Salmon has been interviewed since his arrival, and makes the following statements. Asked if all quarantined cattle were to be killed, Dr. Salmon replied: "The measure that are to be adopted here are not yet definitely decided upon, and therefore I do not care to state at this time whether or not all quarantined cattle will be killed."

"The official information received from England is that a quarantine has been established against animals from all New England, which includes both Boston and Portland as shipping points."

Secretary of Agriculture Wilson, from Chicago, states that his latest report from the infected district in New England that the disease is at a standstill. He will send a large number of veterinaries and make diligent search for the disease in every section. Before many days have passed, there will be several hundred veterinary surgeons in the New England States, and they will be instructed to inspect every cow, sheep and hog. Secretary Wilson believes "We shall need three or four weeks to stamp out the disease. Congress will be asked for a special appropriation to cure the disease permanently. He intends to ask at least \$1,000,000 for this purpose."

The Cattle Bureau of the State Board of Agriculture of this State have commenced a systematic and exhaustive inspection of the cattle reported as having the foot and mouth disease, the prevalence of which in New England has caused the embargo on traffic in cattle, sheep and hogs.

The Canadian government has quarantined against animals from New England, and its action appears to be identical with that of the English government.

Dr. Salmon says the situation is very disquieting, principally because cattle dealers have been selling diseased animals, and scattering the contagion, and because there has been no adequate conception of the danger of carrying the disease by people who have visited the diseased herds. The contagion of this disease is carried more easily than that of any other contagious disease affecting animals, and consequently it is one of the hardest diseases to hold in check by quarantine. When this is thoroughly understood by the cattle owners, and they are persuaded to keep away from diseased herds, there will be less spreading of the disease.

Dr. Salmon thinks the Government will

give reasonable compensation to cattle owners whose animals are slaughtered under direction of the Federal Government: He reports no cases of the disease are known at present outside of New England.

The duration of quarantine will depend upon circumstances. Where the diseased animals are allowed to live it will naturally be very much longer than were they all killed off, and the premises disinfected. There are numerous cases on record, according to Dr. Salmon, where the disease has been conveyed to people using milk of diseased animals, but still this must be regarded as a comparatively rare occurrence, even where the milk of diseased herds enters into consumption.

In Massachusetts the sale of infected milk can and will be stopped by the authorities. Dr. Austin Peters says: "We are graded authority by law to make such rules as we deem necessary, and they are just as binding as the law that governs quarantine. We have a rule that all cattle in quarantine are to be considered as affected with contagious disease, and their milk is to be destroyed. All the deputies of the cattle bureau are instructed to prevent any milk being sold from infected animals. We lose no time in the matter if we have the slightest suspicion that the quarantine orders are not obeyed to the letter."

An order has been issued allowing animals to pass through the infected district for immediate slaughter, under certain restrictions. Exposed cattle will not be allowed to go for slaughter until all danger of appearance of the disease has passed.

Of course, this serious outbreak of the foot and mouth disease has been a great loss to the steamship companies and to the cattle dealers who are engaged in the export trade. The effect of the cattle quarantine order on the Brighton and Watertown stock yards will be to shut off the receipt of a large percentage of the cattle usually forwarded there. Beef cattle brought in for immediate slaughter will be allowed on sale under certain restrictions, but it is probable that no milk cows will be allowed on sale at these yards, except for immediate slaughter. Of course this will mix things up on the railroads for some little time to come.

The executive council held a special session at the State House, and approved an order which gives the Massachusetts Cattle Bureau complete control over public auctions of cattle and over the use of public highways in Massachusetts for the transportation of cattle, besides extending its powers along other lines connected with the battle against the disease. The order is as follows:

State House, Boston, Nov. 29, 1902.

To All Whom It May Concern: By virtue of the power and authority vested by law in the Cattle Bureau of the State Board of Agriculture, under the provisions of chapter 90 of the revised laws and chapter 116 of the acts of 1902, you are hereby notified that foot and mouth disease, which is a contagious disease, and is so recognized by the laws of this Commonwealth, exists to an alarming extent among cattle, sheep and swine in some sections of this State.

You are hereby further notified that in order to prevent its spread this bureau has issued the following order, to continue until revoked by the chief of the Cattle Bureau:

1. All neat cattle, sheep and swine upon infected premises are to remain in quarantine until such time as the chief of the Cattle Bureau decides that it is proper to release them, and no neat cattle, sheep or swine are to be brought upon or removed from such premises without his permission under any pretext whatsoever. The disposal of the products or manure of such

animals, or litter, hay, straw, utensils and all other material are subject to the orders of the chief of the Cattle Bureau.

2. All persons having no business upon the premises deemed to be infected with foot and mouth disease, by the chief of the Cattle Bureau are hereby forbidden to trespass thereon.

3. No auctions or public sales of neat cattle, sheep or swine shall be held in localities deemed to be infected by the chief of the Cattle Bureau, without his permission.

4. When in the opinion of the chief of the Cattle Bureau the foot and mouth disease appears to be increasing in a city or town, all persons are forbidden to drive or transport any neat cattle, sheep or swine over any public highway, or to turn the same upon any unfenced land in such city or town, without his special permission so to do.

5. All persons are forbidden to tamper with or disregard any notices posted by order of the chief of the Cattle Bureau to the penalty of the law.

This order takes effect upon its approval.

AUSTIN PETERS,

Chief of Cattle Bureau.

Poultry Shows.

NEW ENGLAND.

Dec. 10-15, Providence, R. I. H. S. Babcock, Sec'y.

Dec. 16-18, Lewiston, Me. A. L. Merrill, Sec'y.

Dec. 17-18, Amesbury, Mass. M. H. Sands, Sec'y.

Dec. 18-20, West Haven, Ct. E. J. Crawford, Sec'y.

Dec. 21-25, Bristol, Ct. H. M. Clayton, Sec'y, Plainfield, Ct.

Dec. 26-27, Orange, Mass. J. E. Burt, Sec'y, Athol, Mass.

Dec. 30-Jan. 2, Wallingford, Ct. H. Hayward, Sec'y.

Dec. 30-Jan. 2, Beverly, Mass. Arthur Elliot, Peabody, Mass.

Dec. 30-Jan. 2, Meriden, Ct. Joshua Shute, Sec'y.

Dec. 30-Jan. 2, Milford, N. H. John A. Twiss, Sec'y.

Dec. 31-Jan. 2, Pittsburg, Mass. J. L. Frost, Sec'y.

Jan. 6-8, Lynn, Mass. Charles E. Hunt, Sec'y.

Jan. 6-8, St. Albans, Vt. H. M. Barrett, Sec'y.

Jan. 7-9, Adams, Mass. A. W. Safford, Sec'y.

Jan. 12-17, Boston, Mass. A. N. Sharp, Asst. Sec'y.

Jan. 20-24, Taunton, Mass.

Jan. 30-31, Stamford, Ct. N. R. Jessup, Sec'y.

Jan. 29-31, Methuen, Mass. J. S. Crosby, Sec'y.

Jan. 21-23, Peterboro, N. H. Earl S. Kyles, Sec'y.

Jan. 27-31, New Bedford, Mass. Norman Bartow, N. Y.

Jan. 28-30, Windsor, Ct. Clarence Bryant, Sec'y.

MIDDLE STATES.

Dec. 9-15, Jamestown, N. Y. J. W. Morris, Sec'y.

Dec. 11-13, Hackensack, N. J. M. D. Marsh, Sec'y.

Dec. 11-13, McDonald, Pa. R. R. Holmes, Sec'y.

Dec. 13-15, Syracuse, N. Y. C. C. DePuy, Sec'y.

Dec. 15-18, Salamanca, N. Y. J. E. Hattie, Sec'y.

Dec. 16-18, Elmira, N. Y. H. Benedict, Sec'y.

Dec. 24-26, Elton, N. Y. F. E. Miller, Sec'y.

Jan. 5-10, Lockport, N. Y. W. P. Waters, Sec'y.

Jan. 5-10, New York, N. Y. H. V. Crawford, Sec'y.

Montclair, N. J.

Jan. 1-10, Auburn, N. Y. Fred Roe, Sec'y.

Jan. 12-16, Warren, Pa. J. H. Burden, Sec'y.

Jan. 16-22, Rochester, N. Y. J. Trechler, Sec'y.

Jan. 20-24, Harrisburg, Pa. J. R. Gore, Sec'y, Middle-

town, Pa.

Jan. 28-31, Schenectady, N. Y. H. J. Fuller, Sec'y.

Feb. 22-25, Pittsburg, Pa. J. C. Moore, Sec'y.

"The fur pelts, with long flat scarf ends, will supplement many of the walking costumes of the winter. Some of these wraps are very handsome, especially those of seal and sable, with empire collars and trimmed scarf ends. By some new process a few of the winter pelts are made to look rough, like the zibeline and camel's hair costume worn an suite. The addition of a moderately large picture hat of golden-brown velvet, with drooping plumes in the rich shades of brown, and a pair of suede kid gloves in the pale tint of tan, constitute as smart and elegant costume for various uses as any reasonable-minded young woman or matron could desire. A jet and gold, and pearl and gold appliques and passementeries, in designs both simple and elaborate, are used by Paris designers on many evening gowns and wraps. Black Chantilly or Flanders-lace dresses made up over golden-yellow satin or moire are trimmed with delicate arabesque devices formed of jet and gold bead-work. If the bodice is decorated there are odd half-yokes at the top of the low bodice, and woven in with this yoke are two bands of the trimming which start from its lower edge, and in tapering width reach the belt on both sides of the bodice."

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